



## SEQUENCE LISTING

<110> McGill University  
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<120> LOCI FOR IDIOPATHIC GENERALIZED EPILEPSY, MUTATIONS THEREOF AND  
METHOD USING SAME TO ASSESS, DIAGNOSE, PROGNOSIS OR TREAT EPILEPSY

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<150> 60/167,623

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Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
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Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
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Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly  
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Lys Ala Ile Phe Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr  
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Pro Phe Asn Pro Leu Arg Lys Ile Ala Ile Lys Ile Leu Val His Ser  
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Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
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Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr  
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Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Ile Ala Arg  
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Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
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Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val Asp  
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Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu  
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Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu  
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Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
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Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn  
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Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu  
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Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu  
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Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys  
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Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val  
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Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe  
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Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp  
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Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met  
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Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala  
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Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg  
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Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser  
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Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp  
580 585 590

Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu  
595 600 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln  
610 615 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys  
625 630 635 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly  
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Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile  
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Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu  
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Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu  
690 695 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu  
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Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro  
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Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro  
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Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro  
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Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe

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775

780

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Thr Val Gly Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Phe  
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Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu  
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Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile  
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Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val  
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Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu  
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Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe  
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Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp  
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Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn  
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Ala Leu Ala Phe Glu Asp Ile Tyr Ile Asp Gln Arg Lys Thr Ile  
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Arg Phe Asp Ile Glu Asp Val Asn Asn His Thr Asp Cys Leu Lys  
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Leu Ile Glu Arg Asn Glu Thr Ala Arg Trp Lys Asn Val Lys Val  
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1565		1570		1575	
Val Phe	Ile Val Leu Phe	Thr	Gly Glu Cys Val	Leu	Lys Leu Ile
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Ser Leu	Arg His Tyr Tyr	Phe	Thr Ile Gly Trp	Asn	Ile Phe Asp
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Ser Gly Glu Met Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe  
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Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Gln Pro Ile Thr Thr  
1895 1900 1905

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1910 1915 1920

Arg Ala Tyr Arg Arg His Leu Leu Lys Arg Thr Val Lys Gln Ala  
1925 1930 1935

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Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
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Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly  
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Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
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Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
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Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn

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Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys  
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Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val  
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Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe  
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Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp  
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Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met  
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Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile  
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Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala  
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Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser  
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Asp Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu  
 485 490 495

Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly  
500 505 510

Glu Glu Lys Asp Glu Asp Glu Phe Gln Lys Ser Glu Ser Glu Asp Ser  
515 520 525

Ile Arg Arg Lys Gly Phe Arg Phe Ser Ile Glu Gly Asn Arg Leu Thr  
530 535 540

Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg  
545 550 555 560

Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser  
565 570 575

Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp  
580 585 590

Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu  
595 600 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln  
610 615 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys  
625 630 635 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly  
645 650 655

Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile  
660 665 670

Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu  
675 680 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu  
690 695 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu  
705 710 715 720

Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro  
725 730 735

Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro  
740 745 750

Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro  
755 760 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe  
770 775 780

Met Ala Met Glu His Tyr Pro Met Thr Asp His Phe Asn Asn Val Leu  
785 790 795 800

Thr Val Gly Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Phe  
805 810 815

Leu Lys Ile Ile Ala Met Asp Pro Tyr Tyr Tyr Phe Gln Glu Gly Trp  
820 825 830

Asn Ile Phe Asp Gly Phe Ile Val Thr Leu Ser Leu Val Glu Leu Gly  
835 840 845

Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu  
850 855 860

Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile  
865 870 875 880

Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val  
885 890 895

Leu Ala Ile Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe  
900 905 910

Gly Lys Ser Tyr Lys Asp Cys Val Cys Lys Ile Ala Ser Asp Cys Gln  
915 920 925

Leu Pro Arg Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val  
930 935 940

Phe Arg Val Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met  
945 950 955 960

Glu Val Ala Gly Gln Ala Met Cys Leu Thr Val Phe Met Met Val Met  
965 970 975

Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu  
980 985 990

Ser Ser Phe Ser Ala Asp Asn Leu Ala Ala Thr Asp Asp Asp Asn Glu  
995 1000 1005

Met Asn Asn Leu Gln Ile Ala Val Asp Arg Met His Lys Gly Val  
1010 1015 1020

Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe  
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Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp  
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Leu Asn Asn Lys Lys Asp Ser Cys Met Ser Asn His Thr Ala Glu  
1055 1060 1065

Ile Gly Lys Asp Leu Asp Tyr Leu Lys Asp Val Asn Gly Thr Thr  
1070 1075 1080

Ser Gly Ile Gly Thr Gly Ser Ser Val Glu Lys Tyr Ile Ile Asp  
1085 1090 1095

Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val  
1100 1105 1110

Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn  
1115 1120 1125

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1130 1135 1140

Lys Leu Asn Glu Ser Ser Ser Ser Ser Glu Gly Ser Thr Val Asp  
1145 1150 1155

Ile Gly Ala Pro Val Glu Glu Gln Pro Val Val Glu Pro Glu Glu

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Phe Lys Cys Cys Gln Ile Asn	Val Glu Glu Gly Arg	Gly Lys Gln		
1190	1195	1200		
Trp Trp Asn Leu Arg Arg Thr	Cys Phe Arg Ile Val	Glu His Asn		
1205	1210	1215		
Trp Phe Glu Thr Phe Ile Val	Phe Met Ile Leu Leu	Ser Ser Gly		
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Ala Leu Ala Phe Glu Asp Ile	Tyr Ile Asp Gln Arg	Lys Thr Ile		
1235	1240	1245		
Lys Thr Met Leu Glu Tyr Ala	Asp Lys Val Phe Thr	Tyr Ile Phe		
1250	1255	1260		
Ile Leu Glu Met Leu Leu Lys	Trp Val Ala Tyr Gly	Tyr Gln Thr		
1265	1270	1275		
Tyr Phe Thr Asn Ala Trp Cys	Trp Leu Asp Phe Leu	Ile Val Asp		
1280	1285	1290		
Val Ser Leu Val Ser Leu Thr	Ala Asn Ala Leu Gly	Tyr Ser Glu		
1295	1300	1305		
Leu Gly Ala Ile Lys Ser Leu	Arg Thr Leu Arg Ala	Leu Arg Pro		
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Leu Arg Ala Leu Ser Arg Phe	Glu Gly Met Arg Val	Val Val Asn		
1325	1330	1335		
Ala Leu Leu Gly Ala Ile Pro	Ser Ile Met Asn Val	Leu Leu Val		
1340	1345	1350		
Cys Leu Ile Phe Trp Leu Ile	Phe Ser Ile Met Gly	Val Asn Leu		
1355	1360	1365		
Phe Ala Gly Lys Phe Tyr His	Cys Ile Asn Thr Thr	Thr Gly Asp		
1370	1375	1380		

Arg Phe	Asp Ile Glu Asp Val	Asn Asn His Thr Asp	Cys Leu Lys
1385	1390	1395	
Leu Ile	Glu Arg Asn Glu Thr	Ala Arg Trp Lys Asn	Val Lys Val
1400	1405	1410	
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1415	1420	1425	
Ala Thr	Phe Lys Gly Trp Met	Asp Ile Met Tyr Ala	Ala Val Asp
1430	1435	1440	
Ser Arg	Asn Val Glu Leu Gln	Pro Lys Tyr Glu Glu	Ser Leu Tyr
1445	1450	1455	
Met Tyr	Leu Tyr Phe Val Ile	Phe Ile Ile Phe Gly	Ser Phe Phe
1460	1465	1470	
Thr Leu	Asn Leu Phe Ile Gly	Val Ile Ile Asp Asn	Phe Asn Gln
1475	1480	1485	
Gln Lys	Lys Lys Phe Gly Gly	Gln Asp Ile Phe Met	Thr Glu Glu
1490	1495	1500	
Gln Lys	Lys Tyr Tyr Asn Ala	Met Lys Lys Leu Gly	Ser Lys Lys
1505	1510	1515	
Pro Gln	Lys Pro Ile Pro Arg	Pro Gly Asn Lys Phe	Gln Gly Met
1520	1525	1530	
Val Phe	Asp Phe Val Thr Arg	Gln Val Phe Asp Ile	Ser Ile Met
1535	1540	1545	
Ile Leu	Ile Cys Leu Asn Met	Val Thr Met Met Val	Glu Thr Asp
1550	1555	1560	
Asp Gln	Ser Glu Tyr Val Thr	Thr Ile Leu Ser Arg	Ile Asn Leu
1565	1570	1575	
Val Phe	Ile Val Leu Phe Thr	Gly Glu Cys Val Leu	Lys Leu Ile
1580	1585	1590	

Ser	Leu	Arg	His	Tyr	Tyr	Phe	Thr	Ile	Gly	Trp	Asn	Ile	Phe	Asp
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1610						1615					1620			
Leu	Ile	Glu	Lys	Tyr	Phe	Val	Ser	Pro	Thr	Leu	Phe	Arg	Val	Ile
1625						1630					1635			
Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Lys	Gly	Ala
1640						1645					1650			
Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	Pro
1655						1660					1665			
Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	Phe	Ile
1670						1675					1680			
Tyr	Ala	Ile	Phe	Gly	Met	Ser	Asn	Phe	Ala	Tyr	Val	Lys	Arg	Glu
1685						1690					1695			
Val	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Glu	Thr	Phe	Gly	Asn	Ser
1700						1705					1710			
Met	Ile	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	Asp	Gly
1715						1720					1725			
Leu	Leu	Ala	Pro	Ile	Leu	Asn	Ser	Lys	Pro	Pro	Asp	Cys	Asp	Pro
1730						1735					1740			
Asn	Lys	Val	Asn	Pro	Gly	Ser	Ser	Val	Lys	Gly	Asp	Cys	Gly	Asn
1745						1750					1755			
Pro	Ser	Val	Gly	Ile	Phe	Phe	Phe	Val	Ser	Tyr	Ile	Ile	Ile	Ser
1760						1765					1770			
Phe	Leu	Val	Val	Val	Asn	Met	Tyr	Ile	Ala	Val	Ile	Leu	Glu	Asn
1775						1780					1785			
Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Ala	Glu	Pro	Leu	Ser	Glu	Asp
1790						1795					1800			



Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp  
1805 1810 1815

Ala Thr Gln Phe Met Glu Phe Glu Lys Leu Ser Gln Phe Ala Ala  
1820 1825 1830

Ala Leu Glu Pro Pro Leu Asn Leu Pro Gln Pro Asn Lys Leu Gln  
1835 1840 1845

Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His  
1850 1855 1860

Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu  
1865 1870 1875

Ser Gly Glu Met Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe  
1880 1885 1890

Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Gln Pro Ile Thr Thr  
1895 1900 1905

Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Val Ile Ile Gln  
1910 1915 1920

Arg Ala Tyr Arg Arg His Leu Leu Lys Arg Thr Val Lys Gln Ala  
1925 1930 1935

Ser Phe Thr Tyr Asn Lys Asn Lys Ile Lys Gly Gly Ala Asn Leu  
1940 1945 1950

Leu Ile Lys Glu Asp Met Ile Ile Asp Arg Ile Asn Glu Asn Ser  
1955 1960 1965

Ile Thr Glu Lys Thr Asp Leu Thr Met Ser Thr Ala Ala Cys Pro  
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1985 1990 1995

Gln Glu Gly Lys Asp Glu Lys Ala Lys Gly Lys  
2000 2005

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cctcttcttg tcccctcccc cgcgccctcc tctctcaacc ttccatgaac tgaaatcagg 780  
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<213> Homo sapiens

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caggacctga cagcttcaac ttcttcacca gagaatctct tgcggctatt gaaagacgca 180  
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cccaaagcaa atagtgactt ggaagctgga aagaaccttc catttattta tggagacatt 300  
cctccagaga tgggtgtcaga gcccctggag gacctggacc cctactatat caataagaaa 360  
gtgagtgttt tttttatcag gcatattttt gctgctaatt gcctactgca ttccttggac 420  
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483

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agtttaagtg gtttatactt tcatacttct atgttggtgtt cctgtcttac agacttttat 180  
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<212> DNA  
<213> Homo sapiens

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tatccctgaa ttttggctaa gctgcagttt gggcttttca atgttagctt tttgtaatat 180  
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gattytgaaa ctgtgtctta atgtagtctt aaaataaaac tgaagagcat tttattaaag 420  
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<213> Homo sapiens

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aaaatccatc tgcttagttt tcttttttag tatttatcta ttccactgat ggagtataa	180
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<211> 253

<212> DNA

<213> Homo sapiens

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agtcttgaga gctttgaaaa ctatttcggt aattccaggt aagaagtgat tagagtaaag	180
gataggctct ttgtacctac agctttttct ttgtgtcctg tttttgtgtt tgtgtgtgaa	240
ctcccgtta cag	253

<210> 11

<211> 340

<212> DNA

<213> Homo sapiens

<400> 11

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ggcaatgtct cggcattgag aacattcaga gttctccgag cattgaagac gatttcagtc	180
attccagggt agagcaaggt tagataatga gacggacca tcatgtgatt cagcatcctt	240
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<212> DNA  
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cgactttctt ttttcaaaca ggatattcatt atttcctgga ggggtttttta gatgcactac 180  
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<210> 14  
<211> 604  
<212> DNA  
<213> Homo sapiens

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gaaatagatt agttacttat ttgtcaaact tttattttga aataccaaat ctttctgact 180  
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agaaaaaaaa aatctcctct tatacttgca gagaatcttc tctgtgagat gatcttcagt	240
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tgaca	845

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taatcccaag ggctagaaac tttcttttat caaggtaatt taatttaatg tgaatgcaca	180
taaaatgaga atgataatca aaaggaatga accatattct gttatgaatg ctgaaatctc	240
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gagaacgact tcgcagatga tgagcacagc acctttgagg ataacgagag ccgtagagat	480
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<212> DNA

<213> Homo sapiens

<400> 18

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tgtgtttcat	gaaattcact	gtgtcaccat	ttggttgttt	gcttgtcata	ttgctcaaat	240
taattgttta	atgcattagc	atTTTTTTTT	acagggaaca	accactgaaa	ctgaaatgag	300
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gcaacgagca	atgagtatag	ccagcattct	aacaaataca	gtagaagggt	ggtaacaaat	420
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<210> 19

<211> 818

<212> DNA

<213> Homo sapiens

<400> 19

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ataaccttgg	gaggtttaga	gtaaactgta	atTTTTTTTaa	caagtacaaa	aaaggggtgc	180
tctgtaacaa	aaatgtgttg	attactgaaa	ataagtttag	tggatatgaa	ataaatgtgt	240
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gaatccaggc	agaaatgccc	accctgttgg	tataaatttt	ccaacatatt	cttaatctgg	360
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cactatccaa	tgacggacca	tttcaataat	gtgcttacag	taggaaactt	ggtaagcata	540
ttggaaggta	aatgtgttta	gtcttcaaat	tttctgcttg	aaaaactgtt	tacatttaat	600
tgtgtatagc	agtctttcaa	ccatccttca	tgcttcctgg	cccctgcaaa	atcgcaatta	660
tatttagctg	gctatactct	actTTTTTgc	caaaaataat	cacccttaat	gtgctcacia	720



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ttttcaggat ccagaagtag ctcatagatt aagaacat	818

<210> 20  
 <211> 645  
 <212> DNA  
 <213> Homo sapiens

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aactacaaat tgccatacaa atttaagtta gtaatagaat cattgtggga aaatagcata	180
agcattatgt tctaagagca aatcttatgt catgtatgtt attatctggg ggaattagat	240
taattttgtt ttgatcttag gttttcactg ggatctttac agcagaaatg tttctgaaaa	300
ttattgccat ggatccttac tattatttcc aagaaggctg gaatatcttt gacggtttta	360
ttgtgacgct tagcctggta gaacttggac tcgccaatgt ggaagggtta tctgttctcc	420
gttcatttcg attggtaaaa aaaaaaaaaa aaggaaccaa attcaaaaac ctttctaaca	480
ttcagggttc ttgcatagca ttgtcatagt ttttttgcca cacaaccatt aggcattgta	540
agtttttctg taacatttgc attgtcaaaa acttttccta catgggaata attctcaatt	600
attaggttac cttagttcaa gggcwaggtc ggaaaggtaa cggtt	645

<210> 21  
 <211> 829  
 <212> DNA  
 <213> Homo sapiens

<400> 21	
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aacgttaaatt atgctaataa agatcatcgg caattccgtg ggggctctgg gaaatttaac	180
cctcgtcttg gccatcatcg tcttcatttt tgccgtggtc ggcatgcagc tctttggtaa	240
aagctacaaa gatttgttct gcaagatcgc cagtgattgt caactccac gctggcacat	300
gaatgacttc ttccactcck hcctgattgt gttccgcgtg ctgtgtgggg agtggataga	360
gaccatgtgg gactgtatgg aggttgctgg tcaagccatg tgccttactg tcttcatgat	420
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caccagcatg gcacatgtat acatatgtaa ctaacctgca cattgtgcac atgtacccta	540

aaacttaaag tataataaaa aaaaagagta taatttaatg gtgactgttt tgtcaaaaag	600
aaaaacaaac tatgattatt ggtttaaaaag tccattacct tggatatatt atcacttta	660
caacacagca atatabcagt gccctgcat tttttatacc aaattctatt ttgtcagtca	720
ctttatcaca ttttttatgt gaattacaat agagtatcat attgagatga gcctaaaagg	780
atgtgctggg accattttat aaattcagag ccaaggaaga gagaagtct	829

<210> 22  
 <211> 909  
 <212> DNA  
 <213> Homo sapiens

<400> 22	
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agaaatcatg tctttgtcca aggatgtgct attgagccag tcacaaattc agatcaccca	180
tcttctaate actatgctgt ggtgtttcct tctcatcaag ttttagaact tagagttttt	240
tccacactta aaagaaagaa taagtgattg taatctgctc ttccctacat tgggtgtaaaa	300
ttataatcat gtttttggtg tttttaaggt cctgaatctc tttctggcct tgcttctgag	360
ctcatttagt gcagacaacc ttgcagccac tgatgatgat aatgaaatga ataatctcca	420
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tattcaacag tccttcatta ggaaacaaaa gatttttagat gaaattaaac cacttgatga	540
tctaaacaac aagaaagaca gttgtatgtc caatcataca gcagaaattg ggaaagatct	600
tgactatctt aaagatgtaa atggaactac aagtgggtata ggaactggca gcagtgttga	660
aaaatacatt attgatgaaa gtgattacat gtcattcata aacaaccca gtcttactgt	720
gactgtacca attgctgtag gagaatctga ctttgaaaat ttaaacacgg aagactttag	780
tagtgaatcg gatctggaag aaagcaaaga ggtaagattc tataggtgtg ggtaggtatg	840
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tacttaaga	909

<210> 23  
 <211> 516  
 <212> DNA  
 <213> Homo sapiens

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<222> (393)..(393)  
<223> n = a, c, t or g

<220>  
<221> misc\_feature  
<222> (415)..(415)  
<223> N = a, c, t or g

<220>  
<221> misc\_feature  
<222> (454)..(454)  
<223> N = a, c, t or g

<220>  
<221> misc\_feature  
<222> (513)..(513)  
<223> n = a, c, t or g

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aaattcatag taataatcct tcttggcagg caacttatta ccaaaattaa ggactttact 180  
ttctatgtcc atctcactta cagaaactga atgaaagcag tagctcatca gaaggtagca 240  
ctgtggacat cggcgcacct gtagaagaac agcccgtagt ggaacctgaa gaaactcttg 300  
aaccgaagc ttgtttcact gaaggtaaag aaaagaatcc taatgttaat ctttcatttg 360  
gagtgcagct tatttagctg ttggtcagct aanataaatc acatataata aaatngcact 420  
ttgtaataga tataattcaa tcacctctaa tatnttgaca gacaaaaaaaa cttaaagtct 480  
agtgtcatgc tttgattata tctgcccaat atntgg 516

<210> 24  
<211> 640  
<212> DNA  
<213> Homo sapiens

<400> 24  
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actctaggct tagagagcta tgctagcaag acagagatga gcatagtaat aaaaagacaa 120  
gacaaggaca ttgctaaagg atattatgga agcagagaca ctttatctac ttttattttca 180  
acactttctg caggctgtgt acaaagattc aagtgttgct aatcaatgt ggaagaaggc 240  
agaggaaaac aatgggtggaa cctgagaagg acgtgtttcc gaatagttga acataactgg 300  
tttgagacct tcattgtttt catgattctc cttagtagtg gtgctctggt gagtgaatt 360

aagaaaaggt gatacagcac taatTTTTtag aacactctaa tactgatgac ttattaatcc	420
tttgtttcat tgtcttagta tccaatgcat ttttaattat cccaccttgt atcttctata	480
gatttactct ataactctat atttctggat taacttttac tatgtatgta aatataatTT	540
taagaagcta atcattaatt tttgcttact attaaatagc ccagaaagtg tagcccttca	600
gcttattcat taacaccaaa ggatgtgaat attcaattac	640

<210> 25  
 <211> 607  
 <212> DNA  
 <213> Homo sapiens

<400> 25	
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ttgcgaggaa aaaaaaaaaag taacagtaac tactgtttct ctgccctcct attccaatga	180
aatgtcatat gcatatgatt aattttttta atagcttatg gagtataatt atttttgaaa	240
gctaataatg tgtaacattt tctttatagg catttgaaga tatatatatt gaycagcgaa	300
agacgattaa gacgatgttg gaatatgctg acaaggTTTT cacttacatt ttcattctgg	360
aaatgcttct aaaatgggtg gcatatggct atcaaacata tttcaccaat gcctggagtt	420
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gcttgtctta tttatattca aattctacaa tagtgagtct cagaccacta tgttatgttg	540
acagactata atarccacta aacgcatata tgcaatgaga gtgtcatttc tggaagacaa	600
gggctaa	607

<210> 26  
 <211> 336  
 <212> DNA  
 <213> Homo sapiens

<400> 26	
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ttactcagaa cttggagcct atcaatctct caggacacta agagctctga gacctctaag	180
agccttatct cgatttgaag ggatgagggt aagaaaaatg aaagaacctg aagtattgta	240
tatagccaaa attaaactaa attaaattta gaaaaaagga aaaatgtatg catgcaaaag	300

gaatggcaaa ttcttgcaaa atgctcttta ttgttt 336

<210> 27  
<211> 677  
<212> DNA  
<213> Homo sapiens

<400> 27  
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aaagaatgga aagaccagag attactaggg gaattttttt tctttattaa cagataagaa 180  
ttctgacttt tctttttttc catttgtgta ttaggtgggt gtgaatgcc ttttaggagc 240  
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caggtttgac atcgaagacg tgaataatca tactgattgc ctaaaactaa tagaaagaaa 420  
tgagactgct cgatggaaaa atgtgaaagt aaactttgat aatgtaggat ttgggtatct 480  
ctctttgctt caagttgtaa gtgaacacta ttttctctga atatttttat tgtttggaat 540  
aataacaaaa taatgacata catctattat ttagttccta agaaaaagta tatatttctt 600  
tctatttaaa aaatttcaat ttgttagtac aagtttatga gcccagatgg gtgaaaactt 660  
tattacatgt aaggact 677

<210> 28  
<211> 457  
<212> DNA  
<213> Homo sapiens

<400> 28  
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gggccaaaaat ctgtgtaaaa tttgttttga aatgtctttc aaaaatattc ctttttgaaa 120  
attatatcag taagaatatt tattaacat caggctctaaa ttatttttac tccaaagtaa 180  
aacatgcatg tccttcttaa taggccacat tcaaaggatg gatggatata atgtatgcag 240  
cagttgattc cagaaatgta agtattcctt gtattctaag tctttttaca atattgatca 300  
gggtgtaaaa ttaatcgaat aaagcataaa cgaccaaagt aatgattct atcttgattt 360  
aaaatatttg ggaaaaagtg tgacaggtaa atattcaagc atagcaatgt ttatcagaaa 420  
gatcttacta agataattca acacatgaat tattttg 457

<210> 29  
<211> 379  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (43)..(43)  
<223> n = a, c, t or g

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tggtaggtgg aactccagcc taagtatgaa gaaagtctgt acatgtatct ttactttgtt 180  
attttcatca tctttgggtc cttcttcacc ttgaacctgt ttattgggtg catcatagat 240  
aatttcaacc agcagaaaaa gaagataagt atttctaata ttttctctcc cactgagata 300  
gaaaaattat tccttggagt gttttctctg ccaaataagt acttgaattt agaacaaatg 360  
ggagtatata ttataactg 379

<210> 30  
<211> 393  
<212> DNA  
<213> Homo sapiens

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gccatccatt ttctatttta acattgaaaa aaatgtacaa aaggacacag ttttaaccag 180  
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aaatactata atgcaatgaa aaaattagga tcgaaaaaac cgcaaaagcc tataacctga 300  
ccaggagtaa gaagtatcaa atgatatggg ggaaaataca aaaacaaaaa ctgcatgctt 360  
gtctcacaaa aaagaaaagt aagctaaaca ttt 393

<210> 31  
<211> 539  
<212> DNA  
<213> Homo sapiens

<400> 31  
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tgcaagaaac tagaaagtca attaatgcag aaagtactta atgctaatac acatgagaaa 120

aactcctttg ttgttaaaag catttctatt tctctacaga acaaatttca aggaatggtc	180
tttgacttcg taaccagaca agtttttgac ataagcatca tgattctcat ctgtcttaac	240
atggtcacaa tgatgggtga aacagatgac cagagtgaat atgtgactac cattttgtca	300
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<210> 32  
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 <212> DNA  
 <213> Homo sapiens

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attctcattg tttattcata ggtatgtttc ttgccgagct gatagaaaag tatttcgtgt	180
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gcgattcatg gcttccaatc cttccaaggt ctccatcag ccaatcacta ctactttaaa	1020
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ccatgtgttt	attatatgtg	actatTTTTg	taaacgaagt	ttctgttgag	aaataggcta	1800
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tcacaagaaa	aacaaattct	taaatttcac	catatttctg	ggaggggtaa	ttgggtgata	1980
agtggagggtg	ctttgttgat	cttgttttgc	gaaatccagc	ccctagacca	agtagattat	2040
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aatgttatgt	ttctttttgt	tgtattaaaa	aaaaaacctg	aatagtgaat	attgcccctc	2160
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ataagacatg	aaaacaagac	tgggtagttg	tagattttctg	cttttttaa	tacatttgct	2940
aatttttagat	tatttcacaa	ttttaaggag	caaaataggt	tcacgattca	tatccaaatt	3000
atgcttttgca	attggaaaag	ggtttaaaat	tttatttata	tttctggtag	tacctgcact	3060
aactgaattg	aaggtagtgc	ttatgttatt	tttgttcttt	ttttctgact	tcggtttatg	3120
ttttcatttc	tttgagtaa	tgctgctcta	gattgttcta	aatagaatgt	gggcttcata	3180
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tgtgtttctt	acagaagcaa	accataggct	cctcttttcc	ttaaaactac	ttagataaac	3300
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<210> 33  
 <211> 8349  
 <212> DNA  
 <213> Homo sapiens

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cagcttatca	
atcccaaact	
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gagcaggatg	
aaaagatggc	
acagtcagtg	
ctggtaccgc	180
caggacctga	
cagcttccgc	
ttctttacca	
gggaatccct	
tgctgctatt	
gaacaacgca	240
ttgcagaaga	
gaaagctaag	
agacccaaac	
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35 40 45

Gly Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Ser Leu Pro Phe  
50 55 60

Ile Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Val Pro Leu Glu Asp  
65 70 75 80

Leu Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys  
85 90 95

Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu  
100 105 110

Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His  
115 120 125

Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val  
130 135 140

Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr  
145 150 155 160

Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala  
165 170 175

Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn  
180 185 190

Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val  
195 200 205

Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala  
210 215 220

Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala  
225 230 235 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val  
245 250 255

Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly  
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Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe  
275 280 285

Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly  
290 295 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile  
305 310 315 320

Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu  
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile  
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp  
355 360 365

Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp  
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Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr  
385 390 395 400

Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu  
405 410 415

Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn  
420 425 430

Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln  
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala  
450 455 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile  
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys  
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu  
500 505 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser  
515 520 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser  
530 535 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu

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Ser Ile Arg Gly	Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser					
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Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp						
	580			585		590
Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg						
	595			600		605
Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn						
	610			615		620
Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met						
	625			630		635
Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu						
	645			650		655
Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu						
	660			665		670
Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr						
	675			680		685
His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala						
	690			695		700
Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu						
	705			710		715
Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys						
	725			730		735
Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val						
	740			745		750
Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys						
	755			760		765
Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr						
	770			775		780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly  
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr  
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser  
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val  
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp  
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala  
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala  
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys  
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe  
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu  
945 950 955 960

Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn  
965 970 975

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala  
980 985 990

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly  
995 1000 1005

Arg Met	Gln Lys Gly Ile Asp	Phe Val Lys Arg Lys	Ile Arg Glu
1010	1015	1020	
Phe Ile	Gln Lys Ala Phe Val	Arg Lys Gln Lys Ala	Leu Asp Glu
1025	1030	1035	
Ile Lys	Pro Leu Glu Asp Leu	Asn Asn Lys Lys Asp	Ser Cys Ile
1040	1045	1050	
Ser Asn	His Thr Thr Ile Glu	Ile Gly Lys Asp Leu	Asn Tyr Leu
1055	1060	1065	
Lys Asp	Gly Asn Gly Thr Thr	Ser Gly Ile Gly Ser	Ser Val Glu
1070	1075	1080	
Lys Tyr	Val Val Asp Glu Ser	Asp Tyr Met Ser Phe	Ile Asn Asn
1085	1090	1095	
Pro Ser	Leu Thr Val Thr Val	Pro Ile Ala Val Gly	Glu Ser Asp
1100	1105	1110	
Phe Glu	Asn Leu Asn Thr Glu	Glu Phe Ser Ser Glu	Ser Asp Met
1115	1120	1125	
Glu Glu	Ser Lys Glu Lys Leu	Asn Ala Thr Ser Ser	Ser Glu Gly
1130	1135	1140	
Ser Thr	Val Asp Ile Gly Ala	Pro Ala Glu Gly Glu	Gln Pro Glu
1145	1150	1155	
Val Glu	Pro Glu Glu Ser Leu	Glu Pro Glu Ala Cys	Phe Thr Glu
1160	1165	1170	
Asp Cys	Val Arg Lys Phe Lys	Cys Cys Gln Ile Ser	Ile Glu Glu
1175	1180	1185	
Gly Lys	Gly Lys Leu Trp Trp	Asn Leu Arg Lys Thr	Cys Tyr Lys
1190	1195	1200	
Ile Val	Glu His Asn Trp Phe	Glu Thr Phe Ile Val	Phe Met Ile
1205	1210	1215	



Leu	Leu	Ser	Ser	Gly	Ala	Leu	Ala	Phe	Glu	Asp	Ile	Tyr	Ile	Glu
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Gln	Arg	Lys	Thr	Ile	Lys	Thr	Met	Leu	Glu	Tyr	Ala	Asp	Lys	Val
1235						1240					1245			
Phe	Thr	Tyr	Ile	Phe	Ile	Leu	Glu	Met	Leu	Leu	Lys	Trp	Val	Ala
1250						1255					1260			
Tyr	Gly	Phe	Gln	Val	Tyr	Phe	Thr	Asn	Ala	Trp	Cys	Trp	Leu	Asp
1265						1270					1275			
Phe	Leu	Ile	Val	Asp	Val	Ser	Leu	Val	Ser	Leu	Thr	Ala	Asn	Ala
1280						1285					1290			
Leu	Gly	Tyr	Ser	Glu	Leu	Gly	Ala	Ile	Lys	Ser	Leu	Arg	Thr	Leu
1295						1300					1305			
Arg	Ala	Leu	Arg	Pro	Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met
1310						1315					1320			
Arg	Ala	Val	Val	Asn	Ala	Leu	Leu	Gly	Ala	Ile	Pro	Ser	Ile	Met
1325						1330					1335			
Asn	Val	Leu	Leu	Val	Cys	Leu	Ile	Phe	Trp	Leu	Ile	Phe	Ser	Ile
1340						1345					1350			
Met	Gly	Val	Asn	Leu	Phe	Ala	Gly	Lys	Phe	Tyr	His	Cys	Ile	Asn
1355						1360					1365			
Tyr	Thr	Thr	Gly	Glu	Met	Phe	Asp	Val	Ser	Val	Val	Asn	Asn	Tyr
1370						1375					1380			
Ser	Glu	Cys	Lys	Ala	Leu	Ile	Glu	Ser	Asn	Gln	Thr	Ala	Arg	Trp
1385						1390					1395			
Lys	Asn	Val	Lys	Val	Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu
1400						1405					1410			
Ser	Leu	Leu	Gln	Val	Ala	Thr	Phe	Lys	Gly	Trp	Met	Asp	Ile	Met
1415						1420					1425			
Tyr	Ala	Ala	Val	Asp	Ser	Arg	Asn	Val	Glu	Leu	Gln	Pro	Lys	Tyr

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Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile				
1445		1450		1455
Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile				
1460		1465		1470
Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile				
1475		1480		1485
Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys				
1490		1495		1500
Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn				
1505		1510		1515
Lys Phe Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe				
1520		1525		1530
Asp Ile Ser Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met				
1535		1540		1545
Met Val Glu Thr Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu				
1550		1555		1560
Tyr Trp Ile Asn Leu Val Phe Ile Val Leu Phe Thr Gly Glu Cys				
1565		1570		1575
Val Leu Lys Leu Ile Ser Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly				
1580		1585		1590
Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly				
1595		1600		1605
Met Phe Leu Ala Glu Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr				
1610		1615		1620
Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg				
1625		1630		1635
Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu				
1640		1645		1650

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1670						1675					1680			
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1685						1690					1695			
Thr	Phe	Gly	Asn	Ser	Met	Ile	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser
1700						1705					1710			
Ala	Gly	Trp	Asp	Gly	Leu	Leu	Ala	Pro	Ile	Leu	Asn	Ser	Gly	Pro
1715						1720					1725			
Pro	Asp	Cys	Asp	Pro	Asp	Lys	Asp	His	Pro	Gly	Ser	Ser	Val	Lys
1730						1735					1740			
Gly	Asp	Cys	Gly	Asn	Pro	Ser	Val	Gly	Ile	Phe	Phe	Phe	Val	Ser
1745						1750					1755			
Tyr	Ile	Ile	Ile	Ser	Phe	Leu	Val	Val	Val	Asn	Met	Tyr	Ile	Ala
1760						1765					1770			
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1775						1780					1785			
Pro	Leu	Ser	Glu	Asp	Asp	Phe	Glu	Met	Phe	Tyr	Glu	Val	Trp	Glu
1790						1795					1800			
Lys	Phe	Asp	Pro	Asp	Ala	Thr	Gln	Phe	Ile	Glu	Phe	Ala	Lys	Leu
1805						1810					1815			
Ser	Asp	Phe	Ala	Asp	Ala	Leu	Asp	Pro	Pro	Leu	Leu	Ile	Ala	Lys
1820						1825					1830			
Pro	Asn	Lys	Val	Gln	Leu	Ile	Ala	Met	Asp	Leu	Pro	Met	Val	Ser
1835						1840					1845			
Gly	Asp	Arg	Ile	His	Cys	Leu	Asp	Ile	Leu	Phe	Ala	Phe	Thr	Lys
1850						1855					1860			

Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln  
1865 1870 1875

Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr  
1880 1885 1890

Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser  
1895 1900 1905

Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln  
1910 1915 1920

Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys  
1925 1930 1935

Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys  
1940 1945 1950

Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser  
1955 1960 1965

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Leu Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys  
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Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His  
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Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val  
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Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr  
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Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala  
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Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn  
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Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val  
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Asn Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala  
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Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala  
 225 230 235 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val  
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Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly  
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Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly  
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Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu  
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile  
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp  
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Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp  
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Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr  
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Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu  
405 410 415

Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn  
420 425 430

Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln  
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala  
450 455 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile  
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys  
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu  
500 505 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser  
515 520 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser  
530 535 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu  
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser  
565 570 575

Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp  
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg  
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn  
610 615 620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met  
625 630 635 640

Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu  
645 650 655

Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu  
660 665 670

Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr  
675 680 685

His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala  
690 695 700

Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu  
705 710 715 720

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys  
725 730 735

Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val  
740 745 750

Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys  
755 760 765

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr  
770 775 780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly  
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr  
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser  
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val  
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp  
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala  
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala  
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys  
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe  
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu



945		950		955		960
Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn						
		965		970		975
Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala						
		980		985		990
Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly						
		995		1000		1005
Arg Met Gln Lys Gly Ile Asp Phe Val Lys Arg Lys Ile Arg Glu						
		1010		1015		1020
Phe Ile Gln Lys Ala Phe Val Arg Lys Gln Lys Ala Leu Asp Glu						
		1025		1030		1035
Ile Lys Pro Leu Glu Asp Leu Asn Asn Lys Lys Asp Ser Cys Ile						
		1040		1045		1050
Ser Asn His Thr Thr Ile Glu Ile Gly Lys Asp Leu Asn Tyr Leu						
		1055		1060		1065
Lys Asp Gly Asn Gly Thr Thr Ser Gly Ile Gly Ser Ser Val Glu						
		1070		1075		1080
Lys Tyr Val Val Asp Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn						
		1085		1090		1095
Pro Ser Leu Thr Val Thr Val Pro Ile Ala Val Gly Glu Ser Asp						
		1100		1105		1110
Phe Glu Asn Leu Asn Thr Glu Glu Phe Ser Ser Glu Ser Asp Met						
		1115		1120		1125
Glu Glu Ser Lys Glu Lys Leu Asn Ala Thr Ser Ser Ser Glu Gly						
		1130		1135		1140
Ser Thr Val Asp Ile Gly Ala Pro Ala Glu Gly Glu Gln Pro Glu						
		1145		1150		1155
Val Glu Pro Glu Glu Ser Leu Glu Pro Glu Ala Cys Phe Thr Glu						
		1160		1165		1170

Asp Cys	Val Arg Lys Phe Lys	Cys Cys Gln Ile Ser	Ile Glu Glu
1175	1180	1185	
Gly Lys	Gly Lys Leu Trp Trp	Asn Leu Arg Lys Thr	Cys Tyr Lys
1190	1195	1200	
Ile Val	Glu His Asn Trp Phe	Glu Thr Phe Ile Val	Phe Met Ile
1205	1210	1215	
Leu Leu	Ser Ser Gly Ala Leu	Ala Phe Glu Asp Ile	Tyr Ile Glu
1220	1225	1230	
Gln Arg	Lys Thr Ile Lys Thr	Met Leu Glu Tyr Ala	Asp Lys Val
1235	1240	1245	
Phe Thr	Tyr Ile Phe Ile Leu	Glu Met Leu Leu Lys	Trp Val Ala
1250	1255	1260	
Tyr Gly	Phe Gln Val Tyr Phe	Thr Asn Ala Trp Cys	Trp Leu Asp
1265	1270	1275	
Phe Leu	Ile Val Asp Val Ser	Leu Val Ser Leu Thr	Ala Asn Ala
1280	1285	1290	
Leu Gly	Tyr Ser Glu Leu Gly	Ala Ile Lys Ser Leu	Arg Thr Leu
1295	1300	1305	
Arg Ala	Leu Arg Pro Leu Arg	Ala Leu Ser Arg Phe	Glu Gly Met
1310	1315	1320	
Arg Ala	Val Val Asn Ala Leu	Leu Gly Ala Ile Pro	Ser Ile Met
1325	1330	1335	
Asn Val	Leu Leu Val Cys Leu	Ile Phe Trp Leu Ile	Phe Ser Ile
1340	1345	1350	
Met Gly	Val Asn Leu Phe Ala	Gly Lys Phe Tyr His	Cys Ile Asn
1355	1360	1365	
Tyr Thr	Thr Gly Glu Met Phe	Asp Val Ser Val Val	Asn Asn Tyr
1370	1375	1380	

Ser	Glu	Cys	Lys	Ala	Leu	Ile	Glu	Ser	Asn	Gln	Thr	Ala	Arg	Trp
1385						1390					1395			
Lys	Asn	Val	Lys	Val	Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu
1400						1405					1410			
Ser	Leu	Leu	Gln	Val	Ala	Thr	Phe	Lys	Gly	Trp	Met	Asp	Ile	Met
1415						1420					1425			
Tyr	Ala	Ala	Val	Asp	Ser	Arg	Asn	Val	Glu	Leu	Gln	Pro	Lys	Tyr
1430						1435					1440			
Glu	Asp	Asn	Leu	Tyr	Met	Tyr	Leu	Tyr	Phe	Val	Ile	Phe	Ile	Ile
1445						1450					1455			
Phe	Gly	Ser	Phe	Phe	Thr	Leu	Asn	Leu	Phe	Ile	Gly	Val	Ile	Ile
1460						1465					1470			
Asp	Asn	Phe	Asn	Gln	Gln	Lys	Lys	Lys	Phe	Gly	Gly	Gln	Asp	Ile
1475						1480					1485			
Phe	Met	Thr	Glu	Glu	Gln	Lys	Lys	Tyr	Tyr	Asn	Ala	Met	Lys	Lys
1490						1495					1500			
Leu	Gly	Ser	Lys	Lys	Pro	Gln	Lys	Pro	Ile	Pro	Arg	Pro	Ala	Asn
1505						1510					1515			
Lys	Phe	Gln	Gly	Met	Val	Phe	Asp	Phe	Val	Thr	Lys	Gln	Val	Phe
1520						1525					1530			
Asp	Ile	Ser	Ile	Met	Ile	Leu	Ile	Cys	Leu	Asn	Met	Val	Thr	Met
1535						1540					1545			
Met	Val	Glu	Thr	Asp	Asp	Gln	Ser	Gln	Glu	Met	Thr	Asn	Ile	Leu
1550						1555					1560			
Tyr	Trp	Ile	Asn	Leu	Val	Phe	Ile	Val	Leu	Phe	Thr	Gly	Glu	Cys
1565						1570					1575			
Val	Leu	Lys	Leu	Ile	Ser	Leu	Arg	Tyr	Tyr	Tyr	Phe	Thr	Ile	Gly
1580						1585					1590			

Trp	Asn	Ile	Phe	Asp	Phe	Val	Val	Val	Ile	Leu	Ser	Ile	Val	Gly
1595						1600					1605			
Met	Phe	Leu	Ala	Glu	Leu	Ile	Glu	Lys	Tyr	Phe	Val	Ser	Pro	Thr
1610						1615					1620			
Leu	Phe	Arg	Val	Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg
1625						1630					1635			
Leu	Ile	Lys	Gly	Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu
1640						1645					1650			
Met	Met	Ser	Leu	Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe
1655						1660					1665			
Leu	Val	Met	Phe	Ile	Tyr	Ala	Ile	Phe	Gly	Met	Ser	Asn	Phe	Ala
1670						1675					1680			
Tyr	Val	Lys	Arg	Glu	Val	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Glu
1685						1690					1695			
Thr	Phe	Gly	Asn	Ser	Met	Ile	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser
1700						1705					1710			
Ala	Gly	Trp	Asp	Gly	Leu	Leu	Ala	Pro	Ile	Leu	Asn	Ser	Gly	Pro
1715						1720					1725			
Pro	Asp	Cys	Asp	Pro	Asp	Lys	Asp	His	Pro	Gly	Ser	Ser	Val	Lys
1730						1735					1740			
Gly	Asp	Cys	Gly	Asn	Pro	Ser	Val	Gly	Ile	Phe	Phe	Phe	Val	Ser
1745						1750					1755			
Tyr	Ile	Ile	Ile	Ser	Phe	Leu	Val	Val	Val	Asn	Met	Tyr	Ile	Ala
1760						1765					1770			
Val	Ile	Leu	Glu	Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Ala	Glu
1775						1780					1785			
Pro	Leu	Ser	Glu	Asp	Asp	Phe	Glu	Met	Phe	Tyr	Glu	Val	Trp	Glu
1790						1795					1800			
Lys	Phe	Asp	Pro	Asp	Ala	Thr	Gln	Phe	Ile	Glu	Phe	Ala	Lys	Leu

1805		1810		1815
Ser Asp Phe Ala Asp Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys				
1820		1825		1830
Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser				
1835		1840		1845
Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys				
1850		1855		1860
Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln				
1865		1870		1875
Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr				
1880		1885		1890
Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser				
1895		1900		1905
Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln				
1910		1915		1920
Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys				
1925		1930		1935
Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys				
1940		1945		1950
Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser				
1955		1960		1965
Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys				
1970		1975		1980
Glu Lys Phe Glu Lys Asp Lys Ser Glu Lys Glu Asp Lys Gly Lys				
1985		1990		1995
Asp Ile Arg Glu Ser Lys Lys				
2000		2005		

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 <211> 912

<212> DNA

<213> Homo sapiens

<400> 37

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aaaagcctgt ggaagatcag ttccacaact gagagctttg ggctgcttca gacatatgtc	180
tgtgtgtacg ctgtgaaggt gtttctcttc acagttcccc gccctctagt ggtagttaca	240
ataatgccat tttgtagtcc ctgtacagga aatgcctctt cttacttcag ttaccagaat	300
ccttttacag gaagttaggt gtggtctttg aaggagaatt aaaaaaaaaa aaaaaaaaaa	360
aaaaaagatt tttttttttt taaagcatga tggaatttta gctgcagtct tcttggggcc	420
agcttatcaa tcccaaaactc tgggggtaaa agattctaca ggggtaatgt ttattatttc	480
ttattatgct tattctctgt gatgcttctc tacctttaca gtagtagaat ccttggggaa	540
atctgcagag ggaccacttt catthtgaag ctgctggctg catgttttag catgtctctt	600
ctattagaga atccaggcat ggcagtttcc tccccagtg tgcaaggacc atcttcatgc	660
ctatgtctgt cgctaggcat gagggctctc aggaatgggt gaaaaaatg agggatgttt	720
tggaggcact ataatactgg ggagggcagt ctgctagctg gtagctgaaa ggtccttggt	780
tacttcaaca ttttttttaa ataaaactgt gcagtagttt ttgttatttt agggttccct	840
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<210> 38

<211> 722

<212> DNA

<213> Homo sapiens

<400> 38

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ggcacagtca gtgctggtac cgccaggacc tgacagcttc cgcttcttta ccagggaatc	180
ccttgctgct attgaacaac gcattgcaga agagaaagct aagagacca aacagggaacg	240
caaggatgag gatgatgaaa atggcccaaa gccaaacagt gacttgggaag cagsaaaatc	300
tcttccattt atttatggag acattcctcc agagatgggt tcatgcccc tggaggatct	360
ggacccttac tatatcaata agaaagtgag ttcttagtca agttgccttc actgcctatt	420

tactaattgg ttctgggcta gtcccaggga tgatggtgaa gaaggctggc ctccttcct	480
ctgtctaaag tatcactaag atgctggatg ggcctgaccg tgtaatggac caatgatcct	540
agaagtcttt tggaagcact catttgaacc tgcatttgtg agacaggcag agaactggtg	600
aggcatcctc cagcgcggga attaaggaag gacaaaagcc tattcacctt cttgaataca	660
aattatatgc ttaaaccagt gtaaattgac cctgattccc taataatgtt gagaagcaaa	720
aa	722

<210> 39  
 <211> 561  
 <212> DNA  
 <213> Homo sapiens

<400> 39	
cctatggcat tgatcacaaa ttttcttaat aatcctcatg tcatttatca aatttaggaa	60
agtttatagt gctcagaaaa aaaaagcatc tatcttcatg tcatatgatg gtaattatta	120
tgttatacac tattttacag ggcaatatat ataaataatg gttttacttt tctcttaaaa	180
tattcttaat atatattcta agttttgttt tatgtgttgt gttttctttt tcagacgttt	240
atagtattga ataaagggaa agcaatctct cgattcagtg ccaccctgc cctttacatt	300
ttaactccct tcaaccctat tagaaaatta gctattaaga ttttggtaaa ttcatatcct	360
ttttcaaata gtcacttaat atgattttct tctttgacca agttattgag ctacacattt	420
tccaaaatat ctgtggttgg caatgttatg tgttctttct ttttctttcc ttttactcaa	480
tcgttagcat gttgcaaaat gagatcacag gtaagtgaat tactttcccc cgtcttctaa	540
gtgtttcttc tctaccaaac t	561

<210> 40  
 <211> 510  
 <212> DNA  
 <213> Homo sapiens

<400> 40	
acctaaatag cctcaaaaata gttgatggct tggcctgaag acaagatcta aatatgaggt	60
tgctgagtta tagaaatggc aaaaaaagg gtcaataata gaataataag caacaaaata	120
atagtaagca ctaaagtttt aaacttcatg gtggtgaagg catggtagtg cataaaagta	180
agatttttcc attgaacttt gtcttccttg acgatattct actttattca atatgctcat	240
tatgtgcacg attcttacca actgtgtatt tatgaccatg agtaaccctc cagactggac	300
aaagaatgtg gagtaagtat aaatatTTTT caatattgac ctccctttat gtttcatatt	360

gtgcttttaa caccttgaga cctcctcaat ttctttaaca aatcatgcta gctactgtta	420
accagaccct gattcaaatt catttctgtc actaaatgtc ttctaggaca aagcttgtag	480
tgggctcact tagttgtgta aattactgca	510

<210> 41  
 <211> 370  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (293)..(293)  
 <223> n= a, c, t or g

<400> 41	
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caggtatacc tttacaggaa tttatacttt tgaatcactt attaaaatac ttgcaagggg	120
cttttgttta gaagatttca cattttttacg ggatccatgg aattggttgg atttcacagt	180
cattactttt gcgtaagtat ctttaatacat tttctatcct ggaagagtaa atcactgggtg	240
ggagcctata ctatatatttc cttgggtggct tgccttgaca gaccaagcat ttntcttagt	300
aatcatagtt ttcttccaat caaattatcc agtttggaga aattaggaac tatcatagta	360
aattacatgg	370

<210> 42  
 <211> 370  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (133)..(133)  
 <223> n = a, c, t or g

<400> 42	
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gccattttcc tcttaattgg gaaagctgat ggcgacactc atgaaattaa aaaggtcttg	120
atgaaagacc aangaagacg tagatttccc taaattctga ataactctga tttaattcta	180
caggtatgta acagaatttg taaacctagg caatgtttca gctcttcgaa ctttcagagt	240
cttgagagct ttgaaaaacta tttctgtaat tccaggtgaag aagaaaatgg tataaggtgg	300



taggccccctt atatctccaa ctgtttcttg tgttctgtca ttgtgtttgt gtgtgaaccc	360
cctattacag	370

<210> 43  
 <211> 410  
 <212> DNA  
 <213> Homo sapiens

<400> 43	
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tgtcattgtg tttgtgtgtg aaccccctat tacagatatg tgacagagtt tgtggacctg	120
ggcaatgtct cagcgttgag aacattcaga gttctccgag cattgaaaac aatttcagtc	180
attccagggtg agagctaggt taaacaccga ggctgacttt agctacagtg gtgctacaat	240
cacagctttt gtgcagaagc cttgttgcta gttgcatatt gcaaataaat atgtaaaaaa	300
gcaagaattg gtacatcatt ttttggtatg atttgattct ttgcttttta cccggttgctt	360
tctttaaaac tattctaaat cagcctttga gtttaacaag tgttgcatga	410

<210> 44  
 <211> 1066  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (229)..(229)  
 <223> n = a, c, t or g

<400> 44	
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caagttctgc tttcattcat tttcaccagc tagtaggctt ttcattgaaa tgttattcaa	120
tcacaaacat taaactaata ttgttggcat tctgcatgac atttttattt tccaggccaa	180
gctcatgata tttttgccgg taaaatagct gttgagtagt atatttaant tcccccttct	240
gattttgttt gtaggcctga agaccattgt gggggccctg atccagtcag tgaagaagct	300
ttctgatgtc atgatcttga ctgtgttctg tctaagcgtg tttgcgctaa taggattgca	360
gttgttcatg ggcaacctac gaaataaatg tttgcaatgg cctccagata attcttcctt	420
tgaaataaat atcacttcct tctttaacaa ttcattggat gggaatggta ctactttcaa	480
taggacagtg agcatattta actgggatga atatattgag gataaaaagta agatatactc	540
tataaaccat taagttgttt agttctctaa atattaaata ttatatataa tggaaattat	600

ctcaatttag atgtgaatca agtgacttag actaatttaa gatgatttaa tacatataaa	660
agagatatca aaggatacct tattctatctt ttsttatctg tccattgata tagtaaaagt	720
tctcatttga aaatgtgttg tcttatactc atgttgaaag taatttcata ttatgccata	780
ttaaaaaagg tttatttggg agacattaat cagggttttc agtcatttta ataaataagt	840
cagtagtttg aactattcmg cgtattccac tgaaatgtcg ttaagaagac tgaggggaaa	900
taatttggcc ctatttgggt gatgcaacat atgtattgag tacatatgct atatctgaaa	960
ctagagaaac catttatcaa gatgaaataa gaatttgtgt gctcctcaga aggttaagta	1020
accctgattt agccattcac ttcattccata ttctaattag tccctt	1066

<210> 45  
 <211> 385  
 <212> DNA  
 <213> Homo sapiens

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gatttttaatg attcttttcta ttcctttctc tttaaataagg tcacttttat tttttacagg	180
ggcaaaatga tgctctgctt tgtggcaaca gctcagatgc agggtaagtg tatgcttctt	240
actgagtttc agtccacact gctccatcag tgtcaataac ctgccacctc ccactcatcc	300
agtcccacca ctctcactc aaaaccctcc ataaattcta cttcacgggtg actctcagaa	360
tgaccaggat aagtgtagat tctca	385

<210> 46  
 <211> 430  
 <212> DNA  
 <213> Homo sapiens

<400> 46	
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cattatataa atcagtccac ttagtgctga gttaagtact gggtaagggtg agagaaatcg	120
gcttttttct agtgccgtga taaaacagac attggcatat attaaaacag gaaaaccaat	180
tagcagactt gccgttattg actycctctc tttcctctaa cctaattaca gccagtgtcc	240
tgaaggatac atctgtgtga aggctggtag aaaccccaac tatggctaca cgagctttga	300
caccttttagt tgggcctttt tgccttatt tcgtctcatg actcaagact tctgggaaaa	360

cctttatcaa ctggtgagaa cagataaaat catttttctg agaatcataa aacaccgaac	420
tcaagagaat	430

<210> 47  
 <211> 646  
 <212> DNA  
 <213> Homo sapiens

<400> 47	
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aaaatctctc ttccattttg cagacactac gtgctgctgg gaaaacgtac atgatatttt	120
ttgtgctggg cattttcttg ggctcattct atctaataaa tttgatcttg gctgtgggtg	180
ccatggccta tgaggaacag aatcaggcca cattggaaga ggctgaacag aaggaagctg	240
aatttcagca gatgctcgaa cagttgaaaa agcaacaaga agaagctcag gtatagttaa	300
caagcatacg gtcctttgtt tttctgtatc taaattcttt aacctaaatg ttgaggtcag	360
tggcaaggta gttgacatta gaaataggtc atatgtgttt ggtaagtgct aggagcctgt	420
ttggttatta agaagttatt actttattgc aatgatctct gtcaatagtg tcaatagtaa	480
tggcatcaaa aaatggataa ttataattgc ttactgaca tttttttctc ccttgtagct	540
ccttgaggaa attaattgatt aacaaaggcc tcatgtactc aaacttgcag agtagataaa	600
cctacatgtc ctcagttgaa gtattttctt aggggaagag gaattc	646

<210> 48  
 <211> 711  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (164)..(164)  
 <223> n = a, c, t or g

<400> 48	
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ctgtgttcta aaacacagaa taaaatggag aattgttttt caagattatc ttcattgat	120
tgaagctcaa ttaagcagta acatgataat tatttttttaa gatnatatgc aacttcccac	180
atacttttgc cccttctagg cggcagctgc agccgcatct gctgaatcaa gagacttcag	240
tggtgctggg gggataggag ttttttcaga gagttcttca gtagcatcta agttgagctc	300
caaaagttaa aaagagctga aaaacagaag aaagaaaaag aaacagaaag aacagtctgg	360

agaagaagag	aaaaatgaca	gagtcctaaa	atcggaatct	gaagacagca	taagaagaaa	420
aggtttccgt	ttttccttgg	aaggaagtag	gctgacatat	gaaaagagat	tttcttctcc	480
acaccaggta	aaaatattaa	attacatgaa	ttgtgttctc	ataaattttt	taaaagaata	540
tgccagaatt	taatggagag	aaaaccgcct	tccacctgga	tggcacaatg	ctttcagagt	600
agtgatgatt	atcaagtgtt	ttggctatca	cttcagagaa	tttgtgagtt	ttgcaacttt	660
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<210> 49

<211> 1026

<212> DNA

<213> Homo sapiens

<400> 49

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aagtgcctaa	atgccaccag	cagtcatcag	aggggtgctt	tcttccacat	gtccaatgac	180
ttatccttga	gtaagtcaat	gactatgaca	caatgaatca	aattctgttt	ttcagaatgc	240
cagctcttaa	ctctcttcat	ctcatttttg	tttcttttct	tgttattcat	agtccttact	300
gagcatccgt	ggctcccttt	tctctccaag	acgcaacagt	agggcgagcc	ttttcagctt	360
cagaggtcga	gcaaaggaca	ttggctctga	gaatgacttt	gctgatgatg	agcacagcac	420
ctttgaggac	aatgacagcc	gaagagactc	tctgttcgtg	ccgcacagac	atggagaacg	480
gcgccacagc	aatgtcagcc	aggccagccg	tgctccagg	gtgctcccca	tcctgcccac	540
gaatgggaag	atgcatagcg	ctgtggactg	caatgggtgtg	gtctccctgg	tcggggggccc	600
ttctaccctc	acatctgctg	ggcagctcct	accagagggtg	aggccaacyy	magattgcag	660
ctgatgtgaa	gagagttgtg	actggtgcag	gcaggagtgy	ttttccattt	mcacatctaa	720
gaatttkttg	agtttsttgc	ccaaaggctg	ggagtttggt	caatcaagct	gttaactgtc	780
ttgtgaaact	sttctattca	gacttitycta	caaagtaatt	aaaaacctag	gttggctgtc	840
agagaatata	attagamgtm	atctttcatc	ayyattacta	tggtatgaaa	ctcgccaaaa	900
agcaaagcaa	caatttatca	agcataatgt	tygaytaata	tagttaaatt	aaatccaagg	960
aaattaatgc	tcacaaatta	aataaatact	taaggatttt	gtgattgttg	ttcatttaaa	1020
aggaga						1026

<210> 50  
<211> 601  
<212> DNA  
<213> Homo sapiens

<400> 50  
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taaacaaccc ccaaataatt atcattccaa caatatctta gtgagctttt tacatctgag 120  
aaagcatggg gtatatcttag ttaaataaca cctggtgtag gaatgctttg ggctttgctg 180  
ctttcaaaaa tagtggttat ttcactctgaa attctacttc tagggcacia ctactgaaac 240  
agaaataaga aagagacggg ccagttctta tcatgtttcc atggatttat tggaagatcc 300  
tacatcaagg caaagagcaa tgagtatagc cagtattttg accaacacca tggaaggatc 360  
gttaaaagtc ctgcgtcaca gttacttggt gctttcctaa tgatgaaaaa cacttcataa 420  
atttcaataa aatacttcct gacttgatat tgtatcatta ttacacattt tactaaataa 480  
cagtaaaatc cgtgcataac tcatggattc atatattcca cagatttttt tttttatat 540  
ttagcctgta gaaagctgct gcaaagttaa ggtatatttg aacaccactt tcataactta 600  
a 601

<210> 51  
<211> 645  
<212> DNA  
<213> Homo sapiens

<400> 51  
gcttactagc ctttctgtac tgatcctttc tatgacagca aaccattgt aaaattttcc 60  
ctgttcctcc agcagattaa ccataatat cttttaacaa ctttagattt tttaaattcc 120  
ttttaattta aaccaaattc gcttaataga aagtaagcag ttttcatgag gattctaact 180  
tttttcttc cagaacttga agaattccaga cagaaatgcc caccatgctg gtataaattt 240  
gctaatatgt gtttgatttg ggactgttgt aaaccatggg taaagggtgaa acaccttgct 300  
aacctggttg taatggaccc atttggtgac ctggccatca ccatctgcat tgtcttaaat 360  
acactcttca tggctatgga gcactatccc atgacggagc agttcagcag tgtactgtct 420  
gttgaaacc tggtaagcct cactgagagt ttctcttcct cttgaaagag ttataattg 480  
ccttagtgaa ttttacatat tgctctcaaa ttaaataatca actaattggc catgtatatc 540  
ttgacatcaa atgttttagca tcccttttaa ataacaaaaa aatgttgcta ccatagtgca 600  
aaagagtcaa agaatttatg tacaatttga tttagaattg aattt 645

<210> 52  
<211> 485  
<212> DNA  
<213> Homo sapiens

<400> 52  
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gttgctcaat aattattcgt gtttcaakas tatttgctca tataatgaac tacacttctc 120  
atttaggtct tcacagggat cttcacagca gaaatgtttc tcaagataat tgccatggat 180  
ccatattatt actttcaaga aggctggaat atttttgatg gttttattgt gagccttagt 240  
ttaatggaac ttggtttggc aaatgtggaa ggattgtcag ttctccgac attccggctg 300  
gtaaattaaac tgggagtgtt cataaaaatgt actttrtaat taattagtct tcattctcat 360  
ctagtaaaaaa tggcaagatt tcccatcatt ataatatatt tgaatacctt ctaaaacaga 420  
ttggattgcc ataccaccaa atggtagttt cttcttcac atagctttaa taaagttcac 480  
ttaa 485

<210> 53  
<211> 602  
<212> DNA  
<213> Homo sapiens

<400> 53  
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tatataataa taaaaataaaa taaaaataaaa aataaaaaaaa taaaaataaaa ataaaattgc 120  
agattttttt agaaatgcag agattaacac tggtcttgct tttatttcca gctccgagtt 180  
ttcaagttgg caaaatcttg gccaaactcta aatatgctaa ttaagatcat tggcaattct 240  
gtgggggctc taggaaacct caccttggtta ttggccatca tcgtcttcat ttttgctgtg 300  
gtcggcatgc agctcttttg taagagctac aaagaatgtg tctgcaagat ttccaatgat 360  
tgtgaactcc cacgctggca catgcatgac tttttccact ccttcctgat cgtgttccgc 420  
gtgctgtgtg gagagtggat agagaccatg tgggactgta tggaggtcgc tggccaaacc 480  
atgtgcctta ctgtcttcat gatggtcatt gtgattggaa atctagtgg atgtagcaaa 540  
aacattttcc tcattttcat taaaaataat gtaatcatta aaaagtgttc aactgaagaa 600  
ta 602

<210> 54  
<211> 803

<212> DNA  
<213> Homo sapiens

<400> 54  
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agtattattt tatattgacc aagcattttt atttcattca ctttttttca gaatagtgtgta 120  
tcatgaatta gcagaaatgc atgttagaat aaaataaggt gtcaagaaca atcttagaaa 180  
actaatgatg gaaagcaatt gaagcaatag aatgttttga tcacctgttt ttctgtctgt 240  
gtttcagggt ctgaacctct tcttggcctt gcttttgagt tccttcagtt ctgacaatct 300  
tgctgccact gatgatgata acgaaatgaa taatctccag attgctgtgg gaaggatgca 360  
gaaaggaatc gattttgtta aaagaaaaat acgtgaattt attcagaaag cttttgttag 420  
gaagcagaaa gcttttagatg aaattaaacc gcttgaagat cttaaataata aaaaagacag 480  
ctgtatttcc aaccatacca ccatagaaat aggcaaagac ctcaattatc tcaaagacgg 540  
aaatggaact actagtggca taggcagcag tgtagaaaaa tatgtcgtgg atgaaagtga 600  
ttacatgtca ttataaaca accctagcct cactgtgaca gtaccaattg ctgttgagaga 660  
atctgacttt gaaaatttaa atactgaaga attcagcagc gagtcagata tggaggaaag 720  
caaagaggta aaatgttaaa taaggagata ttttggtgta tataatctgt gttaaataatc 780  
aggtgtttta tgcgtgtctc tgt 803

<210> 55  
<211> 615  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (90)..(90)  
<223> n = a, c, t or g

<220>  
<221> misc\_feature  
<222> (378)..(386)  
<223> n = a, c, t or g

<400> 55  
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aaaaaaaaata ctatggtggt gtatctaata ttgtgacccc tgacctttac caaagcggat 120  
tggcattatg tttaagttct taattacaga tcaagaaaaa tgcatacaga agatgggggg 180  
gggcacacct aattaatttt tatatttaga ttaaagaaaa taattaaatg tgtttttttg 240

tgggattgat tttcagaagc taaatgcaac tagttcatct gaaggcagca cggttgatat	300
tggagctccc gccgagggag aacagcctga ggttgaacct gaggaatccc ttgaacctga	360
agcctgtttt acagaagnnn nnnnnnaagc aaaacaataa catatgtggt cttgagtatc	420
ctcttttcta cccatttttt cctatttatt taaatgtctg tttatttgtc taccatctag	480
ttcatctatc tatctgtatc tatctatcta tctatctatc tagtaatcat ctataacctat	540
ccaacaactg tacattttatt tgtttttttt ttttgcattt gctgtttgaa aaaaaatgca	600
acgtttttaa ggcaa	615

<210> 56  
 <211> 400  
 <212> DNA  
 <213> Homo sapiens

<400> 56	
gatagctttt gtaagcggaa gctatcttaa aaattaatgt tatttacaat gtattatcag	60
gtaataatgt aaatgaatct cccaccaaca caaatatacc taatcaaaga gtaatttttt	120
gtcttcattt ttttcccaca tatttttagac tgtgtacgga agttcaagtg ttgtcagata	180
agcatagaag aaggcaaagg gaaactctgg tggaatttga ggaaaacatg ctataagata	240
gtggagcaca attgggttca aaccttcatt gtcttcatga ttctgctgag cagtggggct	300
ctggtaggtg atgcatgac cactccttca cctttcatct gaaatctttt ccctttccct	360
tcaatcaact catattaccc actttttaa taagggtgtt	400

<210> 57  
 <211> 560  
 <212> DNA  
 <213> Homo sapiens

<400> 57	
aaattactga aacccttggt tgactgaaat gcccagtcag cagtcattta tgatcagata	60
atgataaagt aaaattcagc catgggaaac attaaacctt ccagccttag gcacctgata	120
agagcttgca tcgtttcctt ttttaagaaa tcatcaatta gagactgttt ctgatcataa	180
aatttaatag aattttttga cttacaggcc tttgaagata tatacattga gcagcgaaaa	240
accattaaga ccatgttaga atatgctgac aagggttttca cttacatatt cattctggaa	300
atgctgctaa agtgggttgc atatggtttt caagtgtatt ttaccaatgc ctgggtgctgg	360
ctagacttcc tgattgttga tgtgagtatg ctgcactttg ctgctttatt cattggcata	420



tatgtaatag ttctagcaat ggtgcctgac acagtgtagg cactcagtaa cactgtatca	480
gcccaaatat aaattatggt tctcatttca cagtgagagg atgcctcaaa acatttttta	540
ccaatttaaa tacatataca	560

<210> 58  
 <211> 480  
 <212> DNA  
 <213> Homo sapiens

<400> 58	
aaattcttag gcctttcccc aaacttacta agtcagactc tgctattggt gtttttaaca	60
agacccttgg gtgattttga aactcatgaa agttcgagaa ttactgattc attgcataga	120
gcaaggctga actgtgtaga cttttttata tgtaaataag aaaattgtgt tgctttttct	180
gtataggtct cactgggttag cttaactgca aatgccttgg gttactcaga acttggtgcc	240
atcaaatccc tcagaacact aagagctctg aggccactga gagctttgtc ccggtttgaa	300
ggaatgaggg taagactgaa tgccttagag tttgtcagaa ttattattga gagcagactg	360
acactttgta ccatggaaat gtcaaattta tggagaattt gtgtcttaca cattcatact	420
gacatagcta atcaatcaaa aataatattt accagatgcc cataatactt ggcactgctg	480

<210> 59  
 <211> 640  
 <212> DNA  
 <213> Homo sapiens

<400> 59	
taattttaaa attcttagtt ggagctacca gagtctagtt tctaccaat attcaacttt	60
gaaacagatt tttttaatca tttgactggt cttttaataa tgtttaaaaa taagtaaata	120
tttggtgttg gcttttcact tatttttcct tctcatcctg tgccagggtg ttgtaaattgc	180
tcttttagga gccattccat ctatcatgaa tgtacttctg gtttgtctga tcttttggct	240
aatattcagt atcatgggag tgaatctctt tgctggcaag ttttaccatt gtattaatta	300
caccactgga gagatgtttg atgtaagcgt ggtcaacaac tacagtgagt gcaaagctct	360
cattgagagc aatcaaactg ccagggtgaa aaatgtgaaa gtaaactttg ataacgtagg	420
acttgatat ctgtctctac ttcaagtagt aagtaatcac tttattattt tccatgatgt	480
gtaattaaaa tgagtctaaa gtttttcttc ctcataatga gatatccacc tgttagaatg	540
gctattatca aacagataaa tgacaataaa tgctggcaag aatgtgaaga aaaggggaacc	600
cttgtagatt gttggcaggg atgtaaatta gtatagcttt	640

<210> 60  
<211> 480  
<212> DNA  
<213> Homo sapiens

<400> 60  
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agcttattta tatgcctgta ttgaatacat gtcaaataga attttgatca attattcaat 120  
ttatttttcta aaattataat tttgggaaaa aagaaaatga tatgactttt cttacaggcc 180  
acgtttaagg gatggatgga tattatgtat gcagctgttg attcacgaaa tgtaagtcta 240  
gttagaggga aattgttttag tttgattaaa tgtatatattc tacaatattg taatttagtg 300  
atattgtcaa taaaataaaa ttatgtgctt aatttataaa acccatctat attataagga 360  
taaaatattt aatcatacta tttctttcaa aattatcata ggatgatttt ctctaatacac 420  
tctgtatctt ttaacatata ttttctagta tttagcaagg cacctgacac aaaactttat 480

<210> 61  
<211> 366  
<212> DNA  
<213> Homo sapiens

<400> 61  
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tataatgggt acaattcttc atattcttta ggtagaatta caacccaagt atgaagacaa 120  
cctgtacatg tatctttatt ttgtcatctt tattatTTTT gggtcattct ttaccttgaa 180  
tcttttcatt ggtgtcatca tagataactt caaccaacag aaaaagaaga taagtatatt 240  
aaaacttcat ccttgctctg aaatatgaac taaatatttc atactctttc ctttagcctc 300  
caaatgcaa tcaccaaaaa aagaatataa aattcagaaa ttattttgag acatttgata 360  
atcgat 366

<210> 62  
<211> 560  
<212> DNA  
<213> Homo sapiens

<400> 62  
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aaatatgact aatatggcat aatttatata ttgaataaag gcatctctat aaatacagat 120  
attagtaaca atagaatgaa atgtgggagc caattttcac atgattacta aggtggattt 180

tatagccagc aaagaacaca attttaacaa gtgttgcttt catttcttta ctttggaggt	240
caagacattt ttatgacaga agaacagaag aaatactaca atgcaatgaa aaaactgggt	300
tcaaagaaac cacaaaaacc catacctcga cctgctgtaa gaataacata ttttcattgc	360
ctgttaaaac tatattacct aaccgtttca cagcccgaat ttctagaaac tagttatttt	420
tgtggatttg taacacaaag ttttttacct taacaatggg actagctagc ctaaatagct	480
tgaaaaatgt actttacata tataatatgt ataaattata taatgcataa catattttat	540
atgtaaacad ataaaaatata	560

<210> 63  
 <211> 650  
 <212> DNA  
 <213> Homo sapiens

<400> 63	
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aaagctacat tttttgttgc tttcttaaaa tcagaagaat tgaattcgat tttttttaag	120
gtttctaattg gaactttttac atattatttg ttccagaaca aattccaagg aatgggtcttt	180
gattttgtaa ccaaacaagt ctttgatatc agcatcatga tcctcatctg ccttaacatg	240
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tttaaaactt tagagggtgtt tttcactaat ctttctcatt catcccaaac tcccaaataa	540
aaatctaata gtccattgtt ttagtttttag ttgcccattt ctctaattgc atgctgtgct	600
tgaaatgatg agtgggaatac aaggaattta tatttttcagc tttcatttat	650

<210> 64  
 <211> 3700  
 <212> DNA  
 <213> Homo sapiens

<400> 64	
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catatataca tgtacctaac tgcctgttc acattttgta aaactaatgt acttatgtaa	120
actttcattt gctactatta agtataacaa tatttttgggt atttggtgat tttctacagg	180

aatgtttctg gctgaactga tagaaaagta ttttgtgtcc cctaccctgt tccgagtgat	240
ccgtcttgcc aggattggcc gaatcctacg tctgatcaaa ggagcaaagg ggatccgcac	300
gctgctcttt gctttgatga tgtcccttcc tgcgttgttt aacatcggcc tccttctttt	360
cctggtcatg ttcactctacg ccatctttgg gatgtccaat tttgcctatg ttaagaggga	420
agttgggatc gatgacatgt tcaactttga gacctttggc aacagcatga tctgcctggt	480
ccaaattaca acctctgctg gctgggatgg attgctagca cctattctta atagtggacc	540
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cccatctggt gggattttct tttttgtcag ttacatcatc atatccttcc tggttgtggt	660
gaacatgtac atcgcggtca tcctggagaa cttcagtgtt gctactgaag aaagtgcaga	720
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ctccaaagtc tcttatgagc ccattacgac cacgttgaaa cgcaaacaag aggaggtgtc	1080
tgctattatt atccagaggg cttacagacg ctacctcttg aagcaaaaag ttaaaaaggt	1140
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tactctcatt gataaactga atgagaattc aactccagag aaaaccgata tgacgccttc	1260
caccacgtct ccaccctcgt atgatagtgt gaccaaacca gaaaaagaaa aatttgaaaa	1320
agacaaatca gaaaaggaag acaaagggaa agatatcagg gaaagtaaaa agtaaaaaga	1380
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aaggtcagtg cctataacaa gacagagacc tctggtcagc aaactggaac tcagtaaact	1560
ggagaaatag tatcgatggg aggtttctat tttcacaacc agctgacact gctgaagagc	1620
agaggcgtaa tggctactca gacgatagga accaatttaa aggggggagg gaagttaaat	1680
ttttatgtaa attcaacatg tgacacttga taatagtaat tgtcaccagt gtttatgttt	1740
taactgccac acctgccata tttttacaaa acgtgtgctg tgaatttatc acttttcttt	1800
ttaattcaca gggtgtttac tattatatgt gactattttt gtaaattgggt ttgtgtttgg	1860
ggagagggat taaagggagg gaattctaca tttctctatt gtattgtata actggatata	1920

ttttaaatgg aggcattgctg caattctcat tcacacataa aaaaatcaca tcacaaaagg	1980
gaagagttta cttcttggtt caggatgttt ttagatTTTT gaggtgctta aatagctatt	2040
cgtatTTTTa aggtgtctca tccagaaaaa atttaattgtg cctgtaaatg ttccatagaa	2100
tcacaagcat taaagagttg ttttatTTTT acataaccca ttaaattgtac atgtatatat	2160
gtatatatgt atatgtgcgt gtatatatat atatattgat acacacatgc acacacagag	2220
atatacacat accattacat tgtcattcac agtcccagca gcatgactat cacattTTTTg	2280
ataagtgtcc tttggcataa aataaaaaata tcctatcagt cttttctaag aagcctgaat	2340
tgacaaaaaa acatccccac caccacttta taaagttgat tctgctttat cctgcagtat	2400
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Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
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Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr  
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Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys  
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Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr  
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Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	Pro	Ala	Leu	Phe	Asn
1595						1600					1605			
Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	Phe	Ile	Tyr	Ala	Ile	Phe
1610						1615					1620			
Gly	Met	Ser	Asn	Phe	Ala	Tyr	Val	Lys	Lys	Glu	Ala	Gly	Ile	Asp
1625						1630					1635			
Asp	Met	Phe	Asn	Phe	Glu	Thr	Phe	Gly	Asn	Ser	Met	Ile	Cys	Leu
1640						1645					1650			
Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	Asp	Gly	Leu	Leu	Ala	Pro
1655						1660					1665			
Ile	Leu	Asn	Ser	Ala	Pro	Pro	Asp	Cys	Asp	Pro	Asp	Thr	Ile	His
1670						1675					1680			
Pro	Gly	Ser	Ser	Val	Lys	Gly	Asp	Cys	Gly	Asn	Pro	Ser	Val	Gly
1685						1690					1695			
Ile	Phe	Phe	Phe	Val	Ser	Tyr	Ile	Ile	Ile	Ser	Phe	Leu	Val	Val
1700						1705					1710			
Val	Asn	Ser	Tyr	Ile	Ala	Val	Ile	Leu	Glu	Asn	Phe	Ser	Val	Ala
1715						1720					1725			



Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp Asp Phe Glu Met  
1730 1735 1740

Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp Ala Thr Gln Phe  
1745 1750 1755

Ile Glu Phe Ser Lys Leu Ser Asp Phe Ala Ala Ala Leu Asp Pro  
1760 1765 1770

Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met  
1775 1780 1785

Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile  
1790 1795 1800

Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met  
1805 1810 1815

Asp Ala Leu Arg Ile Gln Met Glu Asp Arg Phe Met Ala Ser Asn  
1820 1825 1830

Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg  
1835 1840 1845

Lys Gln Glu Glu Val Ser Ala Ala Ile Ile Gln Arg Asn Phe Arg  
1850 1855 1860

Cys Tyr Leu Leu Lys Gln Arg Leu Lys Asn Ile Ser Ser Asn Tyr  
1865 1870 1875

Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp Leu Pro Ile Lys Gln  
1880 1885 1890

Asp Met Ile Ile Asp Lys Leu Asn Gly Asn Ser Thr Pro Glu Lys  
1895 1900 1905

Thr Asp Gly Ser Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser  
1910 1915 1920

Val Thr Lys Pro Asp Lys Glu Lys Phe Glu Lys Asp Lys Pro Glu  
1925 1930 1935

Lys Glu Ser Lys Gly Lys Glu Val Arg Glu Asn Gln Lys  
1940 1945 1950

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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Ala Ala Glu Glu  
20 25 30

Lys Ala Lys Lys Pro Lys Lys Glu Gln Asp Asn Asp Asp Glu Asn Lys  
35 40 45

Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
50 55 60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Met Asn Lys Gly  
85 90 95

Lys Ala Ile Ser Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr  
100 105 110

Pro Leu Asn Pro Val Arg Lys Ile Ala Xaa Lys Ile Leu Val His Ser  
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
130 135 140

Met Thr Leu Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr  
145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala Arg  
165 170 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
180 185 190

Leu Asp Phe Ser Val Ile Val Met Ala Tyr Val Thr Glu Phe Val Ser  
195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu  
210 215 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu  
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn  
260 265 270

Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Ser Asp Ser Ala Phe Glu  
275 280 285

Thr Asn Thr Thr Ser Tyr Phe Asn Gly Thr Met Asp Ser Asn Gly Thr  
290 295 300

Phe Val Asn Val Thr Met Ser Thr Phe Asn Trp Lys Asp Tyr Ile Gly  
305 310 315 320

Asp Asp Ser His Phe Tyr Val Leu Asp Gly Gln Lys Asp Pro Leu Leu  
325 330 335

Cys Gly Asn Gly Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile Cys  
340 345 350

Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr  
355 360 365

Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Tyr  
370 375 380

Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr

385		390		395		400									
Met	Ile	Phe	Phe	Val	Leu	Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Val
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Asn	Leu	Ile	Leu	Ala	Val	Val	Ala	Met	Ala	Tyr	Glu	Gly	Gln	Asn	Gln
			420					425					430		
Ala	Thr	Leu	Glu	Glu	Ala	Glu	Gln	Lys	Glu	Ala	Glu	Phe	Gln	Gln	Met
		435					440					445			
Leu	Glu	Gln	Leu	Lys	Lys	Gln	Gln	Glu	Glu	Ala	Gln	Ala	Val	Ala	Ala
	450					455					460				
Ala	Ser	Ala	Ala	Ser	Arg	Asp	Phe	Ser	Gly	Ile	Gly	Gly	Leu	Gly	Glu
465					470					475					480
Leu	Leu	Glu	Ser	Ser	Ser	Glu	Ala	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala
				485					490					495	
Lys	Glu	Trp	Arg	Asn	Arg	Arg	Lys	Lys	Arg	Arg	Gln	Arg	Glu	His	Leu
			500					505					510		
Glu	Gly	Asn	Asn	Lys	Gly	Glu	Arg	Asp	Ser	Phe	Pro	Lys	Ser	Glu	Ser
		515					520					525			
Glu	Asp	Ser	Val	Lys	Arg	Ser	Ser	Phe	Leu	Phe	Ser	Met	Asp	Gly	Asn
	530					535					540				
Arg	Leu	Thr	Ser	Asp	Lys	Lys	Phe	Cys	Ser	Pro	His	Gln	Ser	Leu	Leu
545					550					555					560
Ser	Ile	Arg	Gly	Ser	Leu	Phe	Ser	Pro	Arg	Arg	Asn	Ser	Lys	Thr	Ser
				565					570					575	
Ile	Phe	Ser	Phe	Arg	Gly	Arg	Ala	Lys	Asp	Val	Gly	Ser	Glu	Asn	Asp
			580					585					590		
Phe	Ala	Asp	Asp	Glu	His	Ser	Thr	Phe	Glu	Asp	Ser	Glu	Ser	Arg	Arg
		595					600					605			
Asp	Ser	Leu	Phe	Val	Pro	His	Arg	His	Gly	Glu	Arg	Arg	Asn	Ser	Asn
	610					615					620				

Gly Thr Thr Thr Glu Thr Glu Val Arg Lys Arg Arg Leu Ser Ser Tyr  
625 630 635 640

Gln Ile Ser Met Glu Met Leu Glu Asp Ser Ser Gly Arg Gln Arg Ala  
645 650 655

Val Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu  
660 665 670

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe  
675 680 685

Leu Ile Trp Asp Cys Cys Asp Ala Trp Leu Lys Val Lys His Leu Val  
690 695 700

Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys  
705 710 715 720

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr  
725 730 735

Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly  
740 745 750

Ile Phe Thr Ala Glu Met Val Leu Lys Ile Ile Ala Met Asp Pro Tyr  
755 760 765

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Ile Ile Val Ser  
770 775 780

Leu Ser Leu Met Glu Leu Gly Leu Ser Asn Val Glu Gly Leu Ser Val  
785 790 795 800

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp  
805 810 815

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala  
820 825 830

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala  
835 840 845

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys  
850 855 860

Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg Trp His Met Asn Asp Phe  
865 870 875 880

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
885 890 895

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu  
900 905 910

Ile Val Phe Met Leu Val Met Val Ile Gly Asn Leu Val Val Leu Asn  
915 920 925

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala  
930 935 940

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly  
945 950 955 960

Arg Met Gln Lys Gly Ile Asp Tyr Val Lys Asn Lys Met Arg Glu Cys  
965 970 975

Phe Gln Lys Ala Phe Phe Arg Lys Pro Lys Val Ile Glu Ile His Glu  
980 985 990

Gly Asn Lys Ile Asp Ser Cys Met Ser Asn Asn Thr Gly Ile Glu Ile  
995 1000 1005

Ser Lys Glu Leu Asn Tyr Leu Arg Asp Gly Asn Gly Thr Thr Ser  
1010 1015 1020

Gly Val Gly Thr Gly Ser Ser Val Glu Lys Tyr Val Ile Asp Glu  
1025 1030 1035

Asn Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val Thr  
1040 1045 1050

Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr  
1055 1060 1065

Glu Glu Phe Ser Ser Glu Ser Glu Leu Glu Glu Ser Lys Glu Lys  
1070 1075 1080

Leu Asn Ala Thr Ser Ser Ser Glu Gly Ser Thr Val Asp Val Val  
1085 1090 1095

Leu Pro Arg Glu Gly Glu Gln Ala Glu Thr Glu Pro Glu Glu Asp  
1100 1105 1110

Leu Lys Pro Glu Ala Cys Phe Thr Glu Gly Cys Ile Lys Lys Phe  
1115 1120 1125

Pro Phe Cys Gln Val Ser Thr Glu Glu Gly Lys Gly Lys Ile Trp  
1130 1135 1140

Trp Asn Leu Arg Lys Thr Cys Tyr Ser Ile Val Glu His Asn Trp  
1145 1150 1155

Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly Ala  
1160 1165 1170

Leu Ala Phe Glu Asp Ile Tyr Ile Glu Gln Arg Lys Thr Ile Lys  
1175 1180 1185

Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe Ile  
1190 1195 1200

Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Gln Thr Tyr  
1205 1210 1215

Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp Val  
1220 1225 1230

Ser Leu Val Ser Leu Val Ala Asn Ala Leu Gly Tyr Ser Glu Leu  
1235 1240 1245

Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu  
1250 1255 1260

Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn Ala  
1265 1270 1275

Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys

1280		1285		1290
Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe				
1295		1300		1305
Ala Gly Lys Phe Tyr His Cys Val Asn Met Thr Thr Gly Asn Met				
1310		1315		1320
Phe Asp Ile Ser Asp Val Asn Asn Leu Ser Asp Cys Gln Ala Leu				
1325		1330		1335
Gly Lys Gln Ala Arg Trp Lys Asn Val Lys Val Asn Phe Asp Asn				
1340		1345		1350
Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln Val Ala Thr Phe Lys				
1355		1360		1365
Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp Ser Arg Asp Val				
1370		1375		1380
Lys Leu Gln Pro Val Tyr Glu Glu Asn Leu Tyr Met Tyr Leu Tyr				
1385		1390		1395
Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu				
1400		1405		1410
Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys				
1415		1420		1425
Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr				
1430		1435		1440
Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro				
1445		1450		1455
Ile Pro Arg Pro Ala Asn Lys Phe Gln Gly Met Val Phe Asp Phe				
1460		1465		1470
Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met Ile Leu Ile Cys				
1475		1480		1485
Leu Asn Met Val Thr Met Met Val Glu Thr Asp Asp Gln Gly Lys				
1490		1495		1500



Tyr Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val  
1505 1510 1515

Leu Phe Thr Gly Glu Phe Val Leu Lys Leu Val Ser Leu Arg His  
1520 1525 1530

Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val Val Val  
1535 1540 1545

Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Met Ile Glu Lys  
1550 1555 1560

Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg  
1565 1570 1575

Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg  
1580 1585 1590

Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn  
1595 1600 1605

Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe  
1610 1615 1620

Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Ala Gly Ile Asp  
1625 1630 1635

Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu  
1640 1645 1650

Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro  
1655 1660 1665

Ile Leu Asn Ser Ala Pro Pro Asp Cys Asp Pro Asp Thr Ile His  
1670 1675 1680

Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn Pro Ser Val Gly  
1685 1690 1695

Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val  
1700 1705 1710

Val Asn Ser Tyr Ile Ala Val	Ile Leu Glu Asn Phe Ser Val Ala
1715	1720 1725
Thr Glu Glu Ser Ala Glu Pro	Leu Ser Glu Asp Asp Phe Glu Met
1730	1735 1740
Phe Tyr Glu Val Trp Glu Lys	Phe Asp Pro Asp Ala Thr Gln Phe
1745	1750 1755
Ile Glu Phe Ser Lys Leu Ser	Asp Phe Ala Ala Ala Leu Asp Pro
1760	1765 1770
Pro Leu Leu Ile Ala Lys Pro	Asn Lys Val Gln Leu Ile Ala Met
1775	1780 1785
Asp Leu Pro Met Val Ser Gly	Asp Arg Ile His Cys Leu Asp Ile
1790	1795 1800
Leu Phe Ala Phe Thr Lys Arg	Val Leu Gly Glu Ser Gly Glu Met
1805	1810 1815
Asp Ala Leu Arg Ile Gln Met	Glu Asp Arg Phe Met Ala Ser Asn
1820	1825 1830
Pro Ser Lys Val Ser Tyr Glu	Pro Ile Thr Thr Thr Leu Lys Arg
1835	1840 1845
Lys Gln Glu Glu Val Ser Ala	Ala Ile Ile Gln Arg Asn Phe Arg
1850	1855 1860
Cys Tyr Leu Leu Lys Gln Arg	Leu Lys Asn Ile Ser Ser Asn Tyr
1865	1870 1875
Asn Lys Glu Ala Ile Lys Gly	Arg Ile Asp Leu Pro Ile Lys Gln
1880	1885 1890
Asp Met Ile Ile Asp Lys Leu	Asn Gly Asn Ser Thr Pro Glu Lys
1895	1900 1905
Thr Asp Gly Ser Ser Ser Thr	Thr Ser Pro Pro Ser Tyr Asp Ser
1910	1915 1920

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 1925 1930 1935

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 1940 1945 1950

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<211> 1380

<212> DNA

<213> Homo sapiens

<400> 69

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gatggattat ttttatttttc tttatgtatt gtgtgcttca atatcctaataaataatatt	180
agctagggttc actgatgtat agaatctttt tctacattta gatattttctt gcaaagtgtt	240
taccagaaag caacacaaaa atactatcag tgagtatgtg ttacactgt tctctaagga	300
gtcaaattcc tcaccttgaa aataattcat cccaggaaga gaaaagggtt tcaaaagact	360
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aatcatgcaa aacaacaaaag tgataaaatt ttttaaaaaa attagtgaga tgcaaataac	540
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gtgttgggaa attttagctc acatcacctc tctactgtca tcttggggca ctttcatgac	660
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ttctttggct caattttgtg tgtgtccgcc agtagatggc gtaccacttt gagtgcgac	780
ggcctttttt tctttctttt tttttttcct caaagctgtt ttctgatata tgttgggtac	840
catagagtga atctcagaac aggaagcggg gccataagca gagaggattc tggaaaggct	900
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ctgtggtcaa aaaaaaaaaa aaaaaaaaaa gctgaacagc tgcagaggaa gacacgttat	1020
accctaacca tcttggtatgc tgggctttgt tatgctgtaa ttcataaggc tctgttttat	1080
caggtaagct gacaaaacat ttcattatct gcaccataga acctagctac cagggtcattt	1140
tccttacttt aaaatcatct tcatgctgct atttttaacc cagtgttggt taaatgtaaa	1200
ttacaggaac caaaggcatc gtttgatgtg taaactgctt actatttctt tatctttcaa	1260
agaaaataga gcctgtctgg aaatggtgat ttatggtaca tactaggcat caatggtctt	1320

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<212> DNA  
<213> Homo sapiens

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tggccccatt cttcctaaat catgctaggg catgctttta acaaggggtca aatatcttgc 180  
tttgcacat ccttgctttc tcgatccagg gccataaaaa aaaaaggaat aaaaccaga 240  
cacagagcca gagcaccct atgccaaatg tcaaagatta taggctaatt tcacctgtat 300  
tctctttcta cagagattat ggagcaagaa aactgaagcc aagccacatc aaggtttgac 360  
agggatgaga tacctgtcaa ggattcatag tagagtggct tactgggaaa ggagcaaaga 420  
atctcttcta gggatattgt aagaataaat gagataattc acagaaggga cctggagctt 480  
ttccggaaaa aggtgctgtg actatctaag gtaactaaac aacttctggg tataagtttg 540  
tttttgtgga aaataaacta aaatctctac tatttaacaa ggacagctgt atcaggacca 600  
aaagaaggca gaggggtgtt ttcttcctc ctctaccagt ttgttcttcc aaagaggcaa 660  
atacatacag ggagacatag cacagatgac cttagggaat ggaatgatgc caaaggctgt 720  
tgatgtaaga aagagagatt aactcagttt ttttttgtt tttgtttttt tgttgttgtt 780  
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<212> DNA  
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ataaaattat gtaagaactc tgtataataa gctcacagag tacaagaaag gagaggaaaa 180  
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aaaccctaatt tctcttgag gggaaaagct gagagtctgg aactagccta tcttccgagg 360

acttagagac aacagtatgg gaatttcaac gagacgtttt tactttcttt tgaccaagat	420
tcaaattctt tattccagcc cttgataagt aaataagaag gtaaaggact atttatttgt	480
aaaaagtttt tcatgatttt gtgatggcac cttgttccat atcatctcag ataaatcaga	540
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ctaaaacaaa aaccaaccag gagaatccaa ttaagtaaaa tgtatgtatt aatataaatt	660
agctattccc atctggaaaa gggcagccat ttctgtgttg aggtgcctca atgatactga	720
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 <212> DNA  
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agaatttttt aaatgctttt aaaaaatgga caaaattata gatattcttg agtttaaata	180
taatgtttat atattatata tactgtacat tgtagaatgg ctaaataaaa ctaattaaca	240
ttaagtacag acttttgata gatttatgaa cttggcttat tgagaatgag gttgaatgat	300
gatgttttca agttcaaagtg tgtagtgcag tactaaaagc atgacttaat gtttatagct	360
ttaaaaagtt actaaagaat gacatttttg ttgatgttct tatgcccaat cgcttgcttt	420
cctaactctt gtgcaatttt tctttttatt gcaggtaatt cgtatgcaag aagctacacg	480
taattaaatg tgcaggatga aaagatggca caggcactgt tggtagcccc aggacctgaa	540
agcttccgcc tttttactag agaatctctt gctgctatcg aaaaacgtgc tgcagaagag	600
aaagccaaga agcccaaaaa ggaacaagat aatgatgatg agaacaacc aaagccaat	660
agtgacttgg aagctggaaa gaaccttcca tttatttatg gagacattcc tccagagatg	720
gtgtcagagc ccctggagga cctggatccc tactatatca ataagaaagt gagtattgat	780
tttagacttc taataaatct ttaatgaaac tcttaactgt aataactttt tctgggcctt	840
atatacagca tcacaatttt tcttctgtta aagattttat aatactcttc actgtcactt	900
atttttatca caatataata aaacaaacat ttataagaaa tgaagtcaag agttgggttac	960
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caaaa	1025

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<211> 433  
<212> DNA  
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ctccttaaata aagcccatgt ctaatttagt aattttactc gtattttctg tttcagactt 180  
ttatagtaat gaataaagga aaggcaattt cccgattcag tgccacctct gccttgata 240  
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cttttaaatgt gaattgccta aatgctattt ctaacagttg attttaaaga aaatgtcagt 360  
tatattttca agtatctgta aaatttcttt gagattaatg gtaacattgt tagtttaatt 420  
catttatttg cat 433

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aacaaataat attaatattca cagtttttgc atcgataaac ttttttgtgt gttttggatc 120  
atttataaat ggccatggta acctactaac atttattcct taactataat ctactttatt 180  
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tcctgactgg acaaagaatg tagagtaagt aggaataact tctgggaatg agaaatgcac 300  
actcaaattc tctagcaatc tccttggtgg tatagcctga cttatggttt ccacttctgt 360  
ctaagaaaag ttattttcat aatatgcagc cggttaaggga ggtctttcgg gggagctatt 420  
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<210> 75  
<211> 701  
<212> DNA  
<213> Homo sapiens

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caaactagat gattatccat aagatacatg aaactattat tctaaaaccc aaatagttaa 120

accagattag attcctaaag aatatatctt ctcttcagtt taactctttg ctcaggcttg	180
taaaactaac taaatgaata gattatcttg taaatagaag taaggaacaa tattttaatg	240
aattgaaaaa ccacaaaagg ataggatttg ctatgattga aaacatttat tttaacagtt	300
caagcaaaat tgttaatttt ggcttgatg ttttctctag gtacacattc actggaatct	360
atacctttga gtcacttata aaaatcttgg caagagggtt ttgcttagaa gattttacgt	420
ttcttcgtga tccatggaac tggctggatt tcagtgtcat tgtgatggcg tgagtaactt	480
tgaaaatttg ataagcgcaa aggagtgaag atagtcatac tacaaacaag gtctttgtgt	540
catatattaa atgtagagct ttcttgtagg tcaagttaac tatatggggt gtgtattttc	600
agaatacata ttagaataca tattgcaatg taaatatatc cagtaaatga tcaataaatg	660
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<210> 76  
 <211> 286  
 <212> DNA  
 <213> Homo sapiens

<400> 76	
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aagcctaggc aatgtttcag cccttcgaac tttcagagtc ttgagagctc tgaaaactat	180
ttctgtaatc ccaggtaaga agaaactggg gtaaggtagt aggcccccta tatctccaac	240
ttttcttggtg tggtattgtg tttgtgtgtg aactccccta ttacag	286

<210> 77  
 <211> 515  
 <212> DNA  
 <213> Homo sapiens

<400> 77	
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aatgtctcag cgttgagaac attcagagtt ctccgagcac tgaaaacaat ttcagtcatt	180
ccagggtgaga gctagggtta acaccgaggt tgactttaat tattgagttt gaaatcaatt	240
tatatgactt acagcattag ccttggttgc tattattaca gttcatcccc gtaaataatg	300
ccaaatgatg tttcaatgtc agtttagctc ctaaaatttt ataaattaca tgcgtattta	360
taaagtcagc ctttgagttt aacagaaaat tgcagtagac atcttcaaaa aatgctaatt	420

tgggcctctt gcgctctctc tctctctttt tcactaccat ggctttacta acagatttgg	480
attttaccat tcgctgcaga tgtagttcaa aaatg	515

<210> 78  
 <211> 564  
 <212> DNA  
 <213> Homo sapiens

<400> 78	
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tctaaatagt caagcaatca tttatggggg aaagagaatg tgtgtgacta ttaagaaatc	180
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aatggcacia tggattcaaa tgggacattt gttaatgtaa caatgagcac atttaactgg	480
aaggataaca ttggagatga cagtaagaag tattacatta tgttaacctt agtgttgctg	540
aatgaatttt caactataaa tagt	564

<210> 79  
 <211> 497  
 <212> DNA  
 <213> Homo sapiens

<400> 79	
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tactaatact aatgtgaata ggattaatat gaaataaaat gggttttttt ttgtattaac	120
aggtcacttt tatgttttgg atgggcaaaa agacccttta ctctgtggaa atgggtcaga	180
tgcagggtaa gaaacataat atatatTTTT aagatataga actcttttgcg aaaaaaaaaa	240
gtaggtagga aaacaactac atgggttatat gtgtagcctt accatgtatg caataaagag	300
cagtgtgtct cccctaggaa gtgccttgtc tgccttaccg gattgccact ggtcctaaac	360
tcacagcaat taaaaattat ccctttgtga agacctttcc ccaaaatttc acagttaaga	420
tgttcttaaa ttgatgtctc aatgtgtgaa ggcccagagt ctgtctttgc tgtacatcta	480
tcagagctgt taggaaa	497



<210> 80  
<211> 501  
<212> DNA  
<213> Homo sapiens

<400> 80  
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tctaaatgtc trwaaawatt tatttgcac taaattttct atcgggtcttc ctagtgaatt 120  
tcactctgata agtttcacgg tgggcaatca cctaaagtgt tctggaaatt aaagcaagat 180  
aattcgtcac agatagcagc tttgggtttt gaaaattcct ataagtcaaa taaattgaaa 240  
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aggatacatc tgtgtgaagg ctggtcgaaa cccaactat ggctacacaa gctttgacac 360  
ctttagctgg gctttcctgt ctctatttcg actcatgact caagactact gggaaaatct 420  
ttaccagttg gtaaggtcca aatgagcatg cataacattt atttttatag acatgtatga 480  
aatgaaaagc ataggctgag t 501

<210> 81  
<211> 432  
<212> DNA  
<213> Homo sapiens

<400> 81  
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catacatgat attttttgtc ctggtcattt tcttgggctc atttttatttg gtgaatttga 180  
tcctggctgt ggtggccatg gcctatgagg ggcagaatca ggccaccttg gaagaagcag 240  
aacaaaaaga ggccgaattt cagcagatgc tcgaacagct taaaaagcaa caggaagaag 300  
ctcaggtact gagtgataaa mgcaaagatt tatcattatt attmmtagtt tctaagtaga 360  
aatagtgtta tactatagag ggtagattgg aactgctttt tcattttata tatmggcatt 420  
gtcattagac ac 432

<210> 82  
<211> 489  
<212> DNA  
<213> Homo sapiens

<400> 82  
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agttgcggca gcatcagctg cttcaagaga tttcagtgga ataggtgggt taggagagct	120
gttggaaagt tcttcagaag catcaaagtt gagttccaaa agtgctaaag aatggaggaa	180
ccgaaggaag aaaagaagac agagagagca ccttgaagga aacaacaaag gagagagaga	240
cagctttccc aaatccgaat ctgaagacag cgtcaaaaaga agcagcttcc ttttctccat	300
ggatggaaac agactgacca gtgacaaaaa attctgctcc cctcatcagg tatgatatttc	360
tactaagtgc tctggtttct ttgtcattgc tattgctttt tagtttttgt attttgtttt	420
ggtacacttt tgtactatct gtacttcagt tgagggacag ggaactaaca tttaatatag	480
ttgtttaaa	489

<210> 83  
 <211> 653  
 <212> DNA  
 <213> Homo sapiens

<400> 83	
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aaaaacactc tttgtactta aatttgcttt aataaaaaata tcaaaatata tgtgtcctct	120
ataaatttga ttatccatgt ttaagggcaa gagtatacta actccaaaga aaacagatcc	180
tttaatatta atatttatta aataattgcg ttcttcccct acccccatcc cattcctttc	240
ctttttgctt tctctgcagt ctctcttgag tatccgtggc tccttgtttt cccaagacg	300
caatagcaaa acaagcattt tcagtttcag aggtcgggca aaggatgttg gatctgaaaa	360
tgactttgct gatgatgaac acagcacatt tgaagacagc gaaagcagga gagactcact	420
gtttgtgccg cacagacatg gagagcgacg caacagtaac gttagtcagg ccagtatgtc	480
atccaggatg gtgccagggc ttccagcaaa tggggaagat gcacagcact gtggattgca	540
atggtgtggt ttccttggtg ggtggacctt cagctctaac gtcacctact gggcaacttc	600
cccagaggtg ataatagatg acctagctgc tactgacatt attcaccaat ttg	653

<210> 84  
 <211> 566  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (477)..(477)  
 <223> n = a, c, t or g

<400> 84  
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gcaataattc aatattttat tcttgaaatt cttacctgga aaattgcatg tagcatgatt 120  
tgcaaagaaa tgctatgtgg tgttgattta cttattggga agagtgggtt gagccatcag 180  
tatttggttt gcagggcacc accactgaaa cggaagtcag aaagagaagg ttaagctctt 240  
accagatttc aatggagatg ctggaggatt cctctggaag gcaaagagcc gtgagcatag 300  
ccagcattct gaccaacaca atggaaggta agagcaggtc atggaacagc caactttctg 360  
tgattatgtg ctttgtgaac tattccttct tttcatagaa ttactgaagt ctgttaccba 420  
gatcgaacta tatattagac ctaagaatgt gatatatggt gtacattatc acattgntta 480  
caaaactaat attggcctta ttctttttga cttgggtcct taccttactt gcagagtgat 540  
atttcaacac ttgatattat atcaat 566

<210> 85  
<211> 748  
<212> DNA  
<213> Homo sapiens

<400> 85  
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aaaaagtcga tctatatgac attttaatta acattttctg aaaatattta atgggattgt 120  
cttctcaagt ttcttaagta atatgaactt ctattttcaa atataagcat caattttgtt 180  
aaataatgta aaatctacta gcaataataa ctcatTTTTTg ttgttattta ctactcttcc 240  
ttgttattgt cctccagaa cttgaagaat ctagacagaa atgtccgcca tgctgggtata 300  
gatttgccaa tgtgttcttg atctgggact gctgtgatgc atgggttaaaa gtaaaacatc 360  
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taaataccct ctttatggcc atggagcact accccatgac tgagcaattc agtagtgtgt 480  
tgactgtagg aaacctggta agtacatttg aagtttactt atttactttg gtagatgtgg 540  
gagagataga ccaaagggaa agatgtattt gtgctgtggt gaacccaaaa attatatcct 600  
ctttcctcat agaaagaaat atctaaggaa tattacaggg aatctcagag atacagccta 660  
aaactcaact ggtatgaatg ctgattgttt aggccaatgt ctgtgctgat tgatcatggt 720  
gtcttaccag ttgtaaacgt ctcaaaat 748

<210> 86  
<211> 664

<212> DNA

<213> Homo sapiens

<400> 86

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agtgctgatc tctaattttt taggtcttta ctgggatttt tacagcagaa atgggttctca	180
agatcattgc catggatcct tattactatt tccaagaagg ctggaatata tttgatggaa	240
ttattgtcag cctcagttta atggagcttg gtctgtcaaa tgtggaggga ttgtctgtac	300
tgcgatcatt cagactggta tctattttata tatatccctg tcgctcattg gcacaacatt	360
tattttgaaa ttgaatcaat gtatatattat ataattatta attttaattt taaatttaca	420
tcaatatgtg acattctaag aaaacatgta aacatccyct ttaaagctaa accattttct	480
aagaatgatg aaagcattca aaatactcta taatgattag gtatgtaggg cacattagaa	540
aacctacaag tactttctaa aactgtgttt taagtttatg aagctttttt ggccttacag	600
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tact	664

<210> 87

<211> 750

<212> DNA

<213> Homo sapiens

<400> 87

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ccacgtgtgg ttctatgata ccacatacta ataaaataat gtctaaaatt atattatgat	180
tactactaac agcatctttt cacttgatta cagcttagag ttttcaagtt ggcaaaatcc	240
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ctcaccttgg tgttgggcat catcgtcttc atttttgctg tggtcggcat gcagctcttt	360
ggtaagagct acaaagaatg tgtctgcaag atcaatgatg actgtacgct cccacggtgg	420
cacatgaacg acttcttcca ctccttcctg attgtgttcc gcgtgctgtg tggagagtgg	480
atagagacca tgtgggactg tatggaggtc gctggccaaa ccatgtgcct tattgttttc	540
atgttgggtca tggtcattgg aaaccttgtg gtatgtatgt agtacaaatg ctcataaatt	600
agaacaagag cagacagtag ctaggaacgt ggccagatgt agtaaacata tctctggttt	660

atagtaagtg gcctagactg aaatccccct attagcactc agagaataag caagttat	720
ttt aacttctcct gggctctggg ttccccat	750

<210> 88  
 <211> 768  
 <212> DNA  
 <213> Homo sapiens

<400> 88	
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atagtaagca ttcaataaac atttgttgaa ataatttttag caaagatcta tgagttccct	120
ttttaggctg ttattttaaat gcatatttca atattaarat aggcattttt ctttttttct	180
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gtgtaggtac tgggaagcagt gttgaaaaat acgtaatcga tgaaaatgat tatatgtcat	540
tcataaaciaa cccagcctc accgtcacag tgccaattgc tggtggagag tctgactttg	600
aaaacttaaa tactgaagag ttcagcagtg agtcagaact agaagaaagc aaggaggtaa	660
ggaatgcttt taaatttttt gttccatttc ctatgataac catgtactac agttatttac	720
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<210> 89  
 <211> 471  
 <212> DNA  
 <213> Homo sapiens

<400> 89	
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ttgatgttgt tctaccccgaa gaaggtgaac aagctgaaac tgaacccgaa gaagacctta	240
aaccggaagc ttgttttact gaaggtaaac aagctctgat gtgattaaat acaatctccc	300
cttgttcttt acggagactg aatatgcctc atttaaaaaa aaaaatttag caaacgaggt	360
gtgggtggctt atgcctgtaa ccccaaaatt ttgggaggct acggtaggag gattgcttga	420

ccccaggagt ttgagaccac cctgggaaat gtagtaaggc tttgcctcta c 471

<210> 90  
<211> 623  
<212> DNA  
<213> Homo sapiens

<400> 90  
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gaagaaggca aagggaagat ctggtggaat cttcgaaaaa cctgctacag tattgttgag 300  
cacaactggg ttgagacttt cattgtgttc atgatccttc tcagtagtgg tgcattggta 360  
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tggcacccaa ggtttaacga tgcaaaattc agttctgaac aaatcagcac catgaaacag 540  
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<210> 91  
<211> 520  
<212> DNA  
<213> Homo sapiens

<400> 91  
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ccatttaagt aaaataaaaat atttttgatt cataggcctt tgaagatata tacattgaac 180  
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<210> 92  
<211> 595  
<212> DNA  
<213> Homo sapiens

<400> 92  
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gtcaacagtt tatttcttgg tgaactaatt aatttttttt tccttttgta ggtttctttg 360  
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agaatagaca ctctaattat tcatgtcaaa aattacatgt aggtaatgat ttagatagaa 540  
aagggtgcc a tactcttctg atatttattt caatagaaat tacagaatta gaagc 595

<210> 93  
<211> 787  
<212> DNA  
<213> Homo sapiens

<400> 93  
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tttaactctt ttcaagcaca tattaatact aaacaaatac attgaaggaa tggtttccat 240  
tcaaaagggt tgtaagctat gttcccctcg ctgtctcttc taggtggttg tgaatgctct 300  
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tcaaggaaga ttatttccct gatgttcttc gtttgaatga ctaacatttg acagcatgaa 660  
aaaaagttaa tgataacacc tataatatca gcttgaattg atcataaaaa agatgttaca 720

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tattttct	787

<210> 94  
 <211> 438  
 <212> DNA  
 <213> Homo sapiens

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ctcttgatat gaaatttcac aatattgtac aaaaagttat ttgttataat actgtcagat	120
tttcatctgg ttaaagtca ttgttaggtg aaatttttat gaacaattca aatatatgtt	180
atttacaggc cacatttaaa ggctggatgg atattatgta tgcagctgtt gattcacgag	240
atgtaagtat cactcaaata ttatttatag gttctagatt tcttatgggtg aatattgggtg	300
gtaatttaaa cactgatata tccaaaattc tatattagaa catttaatat tgcatataaa	360
aaatgaacag tctgcttcaa tatagatgat gcttgattaa tgtgtgccta atatacaata	420
tgtagcta atgaaacg	438

<210> 95  
 <211> 637  
 <212> DNA  
 <213> Homo sapiens

<400> 95	
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actagatcat actagtttta aaaaattgtt tttgtagaac aatatctcag ggtaaggcaa	120
aagtagcact gtattaagta acagcactca ataaattact gatttagtgt aagtatttat	180
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tgaagaaaat ctgtacatgt atttatactt tgtcatcttt atcatctttg ggtcattctt	300
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<210> 143  
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<210> 144  
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<210> 145  
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<210> 146  
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ctagaaggtc ctggggcaac tg 22

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